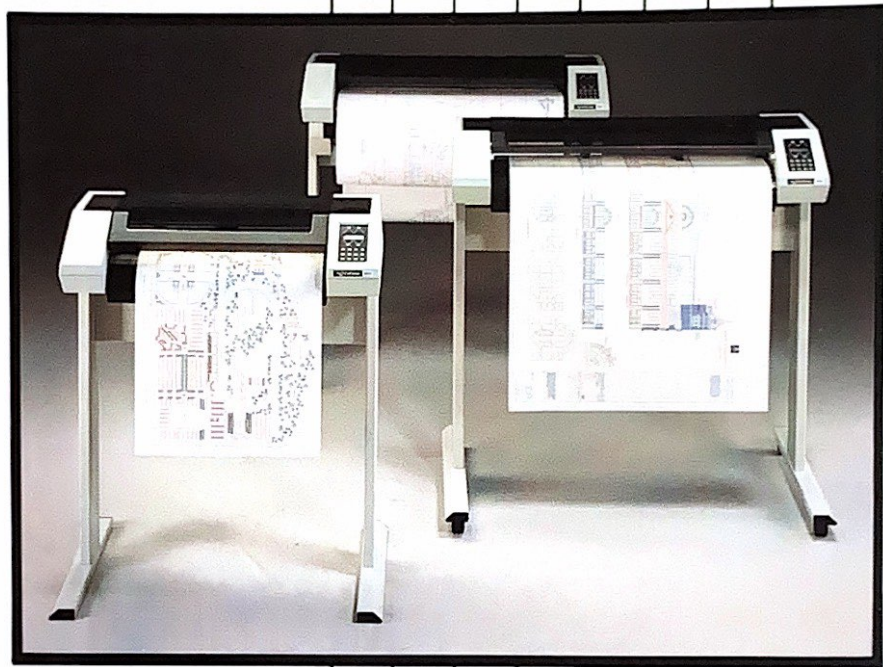


ARTISAN™ PLUS



1023/1025/1026
User's Guide

CalComp

Part No. 15852-0015
Order No. M0020-080

ARTISAN™ PLUS

1023/1025/1026

USER'S GUIDE

March 1990

Revision 1



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STARTED

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Publications Record

Revision	Notes
-0	Initial release of manual
-1	Revised to include Model 1026

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**FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE STATEMENT**

"This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate the computer with respect to the receiver
- move the computer away from the receiver
- plug the computer into a different outlet so that computer and receiver are on different branch circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

*How to Identify and Resolve Radio-TV Interference
Problems*

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4."

USE SHIELDED CABLES

To comply with FCC Class B requirements, all external data interface cables and adapters must be shielded.

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Further, this publication and features described herein are subject to change without further notice.

This manual describes the most recent configuration of Artisan Plus plotters as they are shipped from the factory. Equipment manufactured prior to the time of publication of this manual may differ slightly from that described herein.

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GENERAL INFORMATION

INTRODUCTION

The Artisan Plus plotters are high-performance, high-quality, low-priced pen plotters that are ideally suited for many computer-aided design (CAD) applications, including:

- Mechanical
- Electronic
- Piping
- Civil engineering
- Facilities management
- Mining
- Electrical
- Structural
- Mapping
- Architectural
- Program management
- Interior design

The plotters are easy to install and use. Their full-width grit drums can handle several types and sizes of media. Each plotter is shipped preset for use with an IBM PC compatible host at 9600 baud using AutoCAD. In addition, a variety of other CAD software packages can be used.

To start plotting, a new plotter needs only to be connected, powered up, and loaded with pens and media. The preset conditions can be changed easily through use of the control panel. For your convenience, charts are included in Appendix C to record parameter settings.

The plotters can use a variety of pen types. A rotating pen turret stores up to eight pens in any combination of type, color, or width. To change pens, a pen carriage moves to the turret and makes the exchange. The plotter senses the pen type and automatically sets pen force and speed for optimum plot quality and throughput.

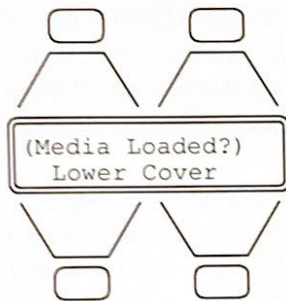
Optional memory expansion cartridges provide 1 or 2 megabytes of data storage capacity. This allows other tasks to be performed on the host while the Artisan Plus is plotting. If AutoCAD is being used, an AutoDesk Interface (ADI) allows saving even more time by down-loading plots faster. The memory expansion cartridge also allows a replot feature to redraw the last plot without involving the host.

The proprietary Plot Manager™ feature increases throughput by optimizing pen movement and pen changes.

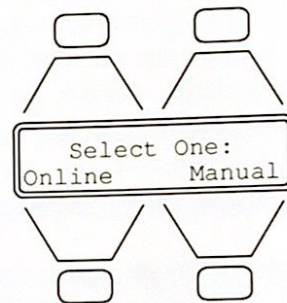
LOADING PLOTTING MEDIA

1

11. Media is now aligned on the plotter.
The following is displayed:



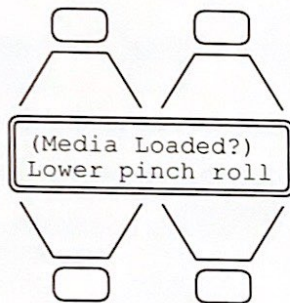
12. Lower the top cover. The following is displayed:



The plotter is now ready to size the media and begin plotting. Proceed to the confidence plot procedure on page 1-23.

1025/1026 PLOTTER CUT-SHEET MEDIA LOADING PROCEDURE (Refer to Figure 1-9)

1. Ensure that power is applied to the plotter.
2. Raise the plotter cover. The following is displayed on the front panel:



This display is prompting you to load media and lower the pinch rollers.

3. Obtain media to be loaded.

NOTE

To avoid interference while loading media, the pen carriage can be moved manually while the pinch rollers are raised.

4. While holding media by its edges, slide media over the front platen, under the pinch rollers and the pen carriage until the top edge of the media aligns with the white media guideline.
5. Align right edge of media to right white guideline (located at right side of platen).
6. Check that the media is still aligned with both the top and right side media guidelines.

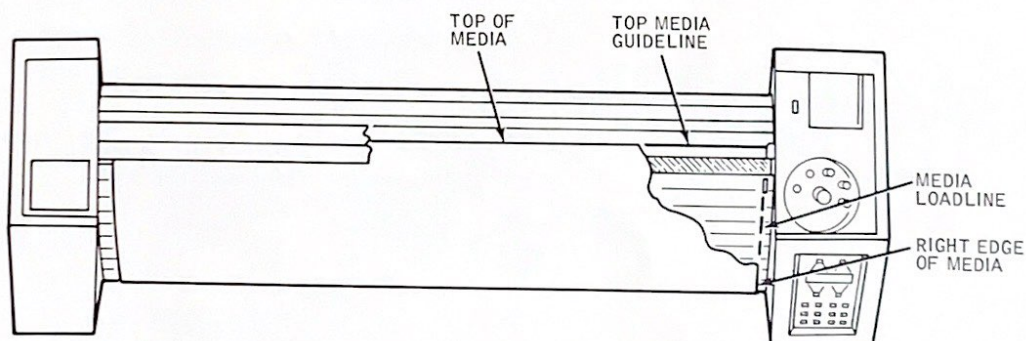


Figure 1-9. 1025/1026 Plotter Media Alignment

LOADING PLOTTING MEDIA

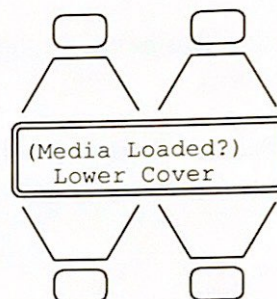
1

7. With the pinch rollers up, slide the left pinch roller over the left edge of the sheet. Move the roller by its "body" rather than by its lever. (Refer to Figure 1-9.)
8. Position the left pinch roller to approximately 1/10 inch (2.5 mm) from the left edge, as shown in Figure 1-10.
9. Lower the pinch rollers by pushing one of the pinch roller levers towards the rear of the plotter. This action lowers both pinch rollers.
10. Push down gently on the pinch roller lever after lowering the pinch rollers to ensure firm engagement of roller with media.

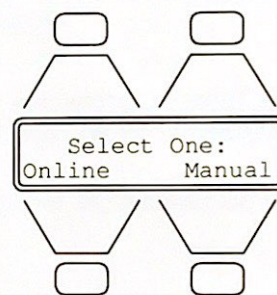
NOTE

When the plotter is not in use, raise the pinch rollers to prevent the rubber rollers from developing flat spots.

11. Media is now aligned on the plotter. The following is displayed:



12. Lower the top cover. The following is displayed:



Proceed to the confidence plot procedure on the following page.

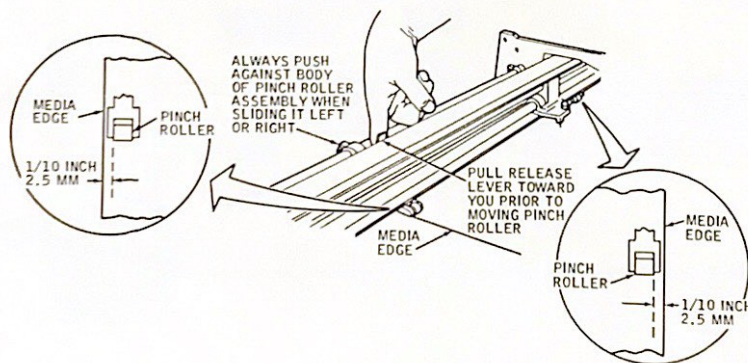


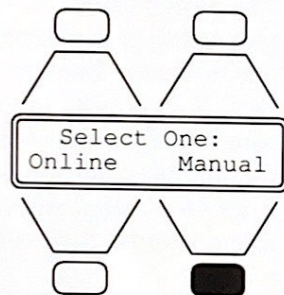
Figure 1-10. 1025/1026 Pinch Rollers

CONFIDENCE PLOT

The confidence plot is an internally stored program that is run to demonstrate that the plotter is functioning. This plot is automatically scaled to fit the size of the sheet loaded. To run the confidence plot, proceed as follows.

1. Ensure that the following have been performed:

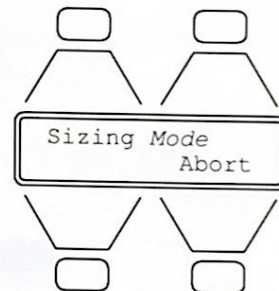
- Turret with pen(s) loaded into plotter
- Media loaded and aligned
- Pinch rollers down and engaged
- Cover lowered and the following is displayed:



2. Press the Manual soft key. The following occurs:

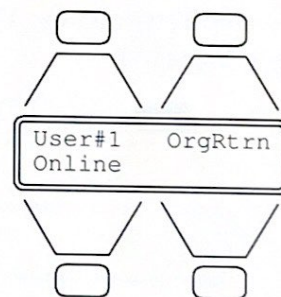
- The plotter moves the pen carriage and media to determine the size of the media.

- During media sizing, the following is displayed:



Mode above can be either Cut-Sheet, Roll Feed, or Roll Mode. This message lets you know the type of media the plotter is sizing.

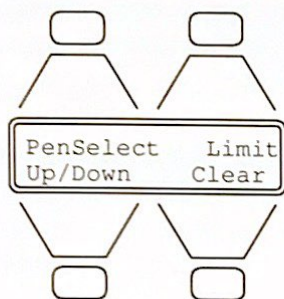
- After media sizing, the following is displayed:



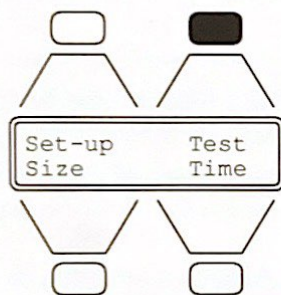
CONFIDENCE PLOT

1

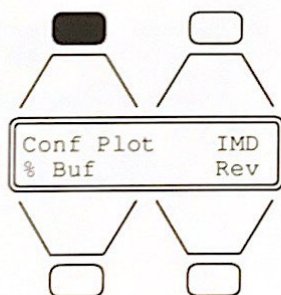
3. Press the NEXT key. The following is displayed:



4. Press the NEXT key. The following is displayed:



5. Press the Test soft key. The following is displayed:



6. Press the Conf Plot soft key. The following is displayed:



L is displayed only when current plot limits are exceeded, e.g., plotter has been asked to plot beyond limits

- The pen carriage takes the pen from the turret and positions the pen on the media surface.
- The plotter draws the confidence plot using a combination of x- and y-vector lines to create the plot. X-axis lines are created by rotation of the grit drum moving the media under the pen. Y-axis lines are created when the pen is moved across the platen.
- A sensor reads the pen bands printed on the body of the pen and translates this information into pen parameters (speed, acceleration, and force values) that optimize throughput and plot quality. The plotter is designed for use with CalComp patented pens. Use of other vendors' supplies may not work as well as those products designed and supplied for this plotter.

- To view the plot in progress, lift the top cover. The media is moved forward and the pen is positioned out of the way. To resume plotting, lower the cover and follow the LCD prompts.
7. After the confidence plot is completed, raise the cover and the pinch rollers and remove the plot.
 8. The plot should appear as shown in Figure 1-11. If it does not, repeat the procedure. If the plot still does not look like Figure 1-11, contact a Cal-Comp Sales and Support Office listed in Appendix D.

NOTE

Each time the pinch rollers are raised, control of the plotter returns to the sizing sequence.

CONFIDENCE PLOT

1

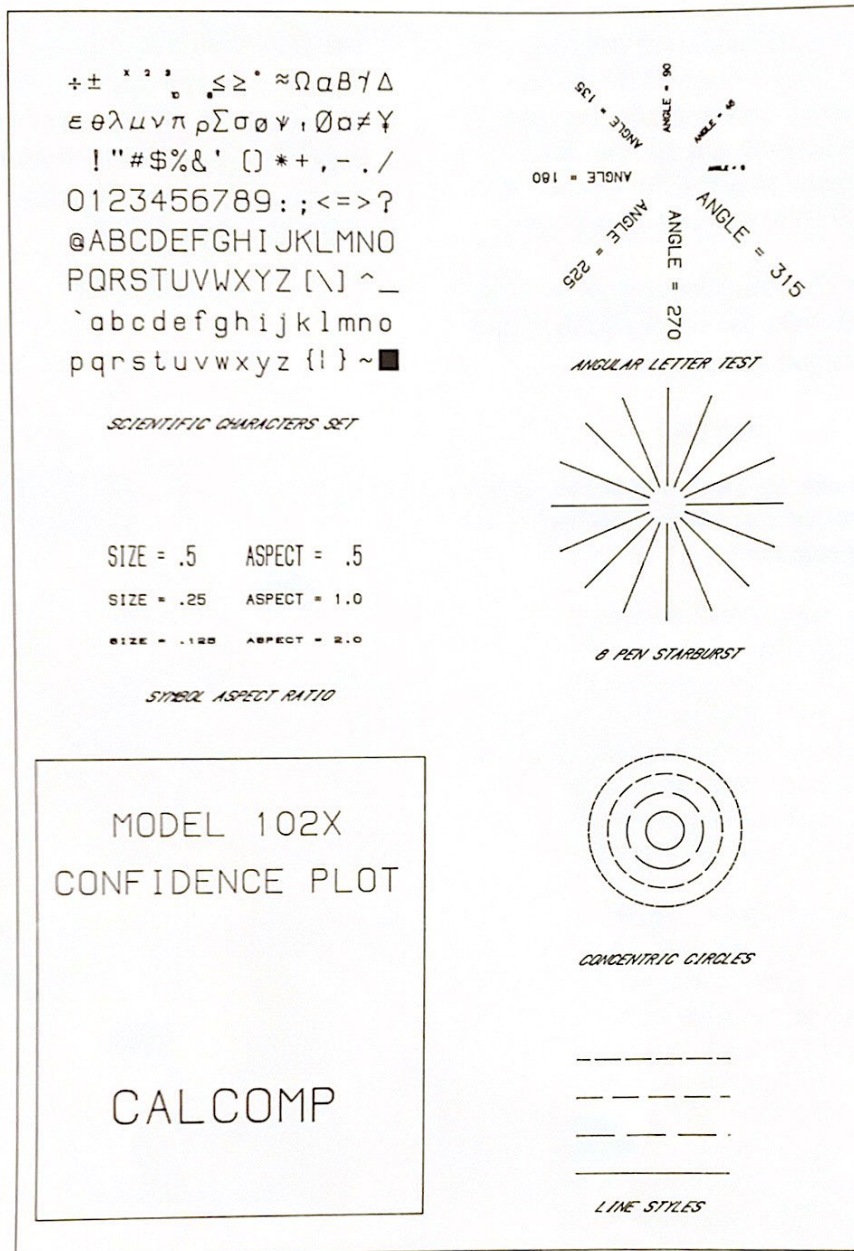


Figure 1-11. Confidence Plot

OPTIONAL MEMORY EXPANSION CARTRIDGE

The optional memory expansion cartridge provides additional plotter memory. This option provides several features.

- Stores plot data from the host to the plotter. This enables the host to perform other operations while the plotter is plotting.
- Runs a replot of a stored drawing without having to send the plot data from the host again.
- On the Artisan Plus 1026, allows Long Plots without having to send the plot data from the host for each frame and allows up to the optional memory size plot data to be stored and plotted in Batch Plot.

The procedures for using the features provided by the memory expansion cartridge are in Chapters 4 and 5. Using these features requires some experience with other menu options so that the user knows what to expect. Therefore, it is recommended that the user become familiar with the basic operations outlined in Chapter 4, and if using an Artisan Plus 1026, Chapter 5.

OPTIONAL MEMORY EXPANSION CARTRIDGE

1

1023/1025 Plotter Memory Expansion Cartridge Installation

To install the memory expansion cartridge proceed as follows:

1. Ensure the plotter is powered off.
2. At the plotter, remove the plastic memory expansion connector cover by pushing on the edge of the cover (Figure 1-12).
3. Remove the memory expansion cartridge from its packing box.
4. Check the label and verify that the memory expansion cartridge is the correct type (1MB, 2MB).
5. Hold the memory expansion cartridge with the label facing up.

CAUTION

Do not force the cartridge into the connector. This can result in damage to the cartridge and/or internal components of the plotter.

6. Insert the memory expansion cartridge (Figure 1-13) into the connector until the locking tabs are seated.
7. Turn on the plotter power.

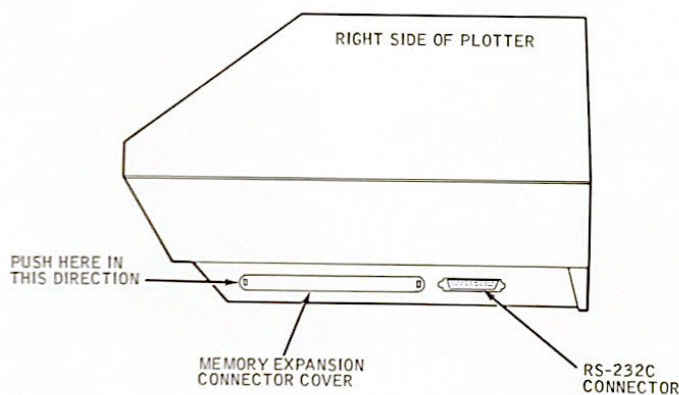


Figure 1-12. Memory Expansion Connector

OPTIONAL MEMORY EXPANSION CARTRIDGE

8. If the message "Auxiliary RAM Problem" is displayed, it indicates a problem with the memory expansion cartridge. Power-off the plotter, remove the cartridge, and contact a CalComp Sales and Support Office listed in Appendix D.
9. Load media and press the Manual soft key. After sizing media, the following should be displayed:

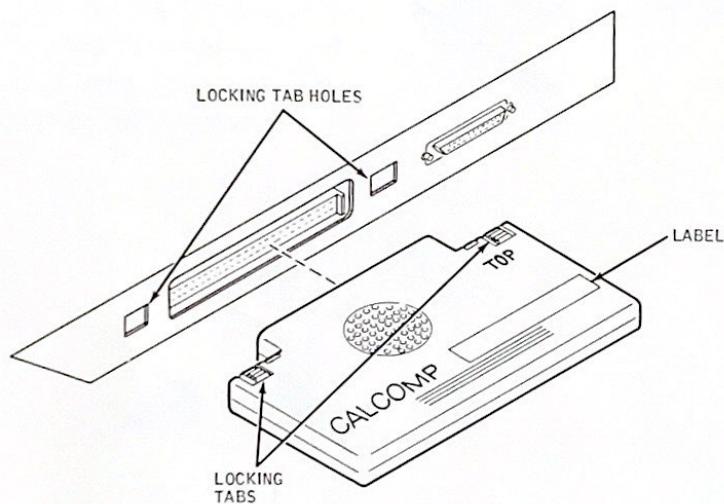
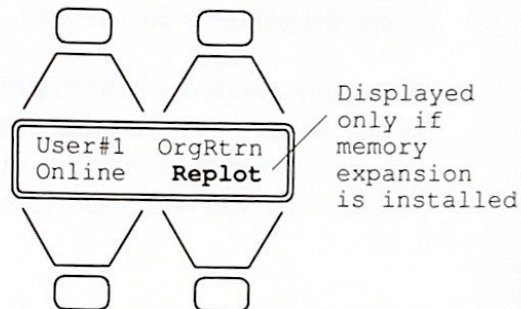


Figure 1-13. Memory Expansion Cartridge

1

1026 Plotter Memory Expansion Cartridge Installation

To install the memory expansion cartridge proceed as follows:

1. Ensure the plotter is powered off.
2. At the plotter, remove the bolt on the bottom of the right end bell assembly (retaining nut is captive and secured to the end bell). See Figure 1-14.
3. Lower the bottom half of the end bell assembly, exposing the area of the memory expansion cover. See Figure 1-12 on page 1-28.
4. Remove the plastic memory expansion connector cover by pushing on the edge of the cover (Figure 1-14).
5. Remove the memory expansion cartridge from its packing box.
6. Check the label and verify that the memory expansion cartridge is the correct type (1MB, 2MB).
7. Hold the memory expansion cartridge with the label facing up.

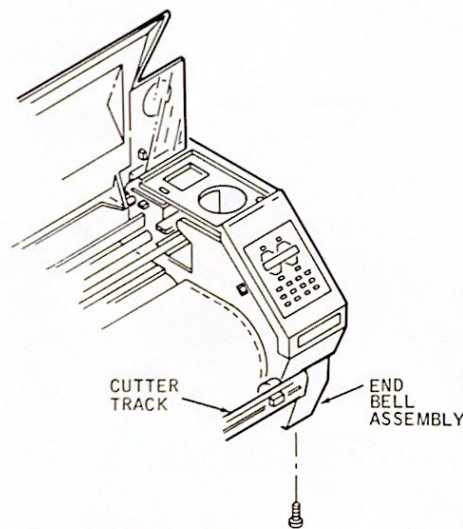


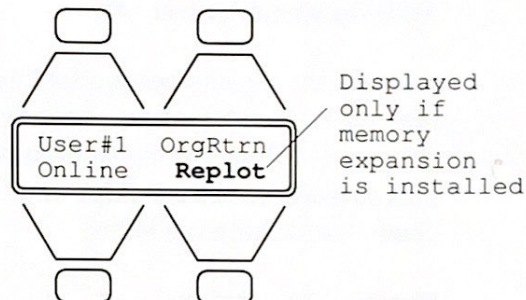
Figure 1-14. 1026 Plotter, Right End bell Assembly

CAUTION

Do not force the cartridge into the connector. This can result in damage to the cartridge and/or internal components of the plotter.

8. Insert the memory expansion cartridge (Figure 1-13) into the connector until the locking tabs are seated.
9. Turn the plotter power on.
10. If the message "Auxiliary RAM Problem" is displayed, it indicates a problem with the memory expansion cartridge. Power-off the plotter, remove the cartridge by squeezing the locking tabs together at the end closest to the plotter, and contact a CalComp Sales and Support Office listed in Appendix D.

11. Load media and press the Manual soft key. After sizing media, the following should be displayed:



12. If the correct message is displayed, raise the portion of the right end bell that was lowered to gain access to the expansion cartridge connector and install the end bell retaining bolt.

OPTIONAL MEMORY EXPANSION CARTRIDGE

1

1023/1025 Plotter Memory Expansion Cartridge Removal

To remove the memory expansion cartridge proceed as follows:

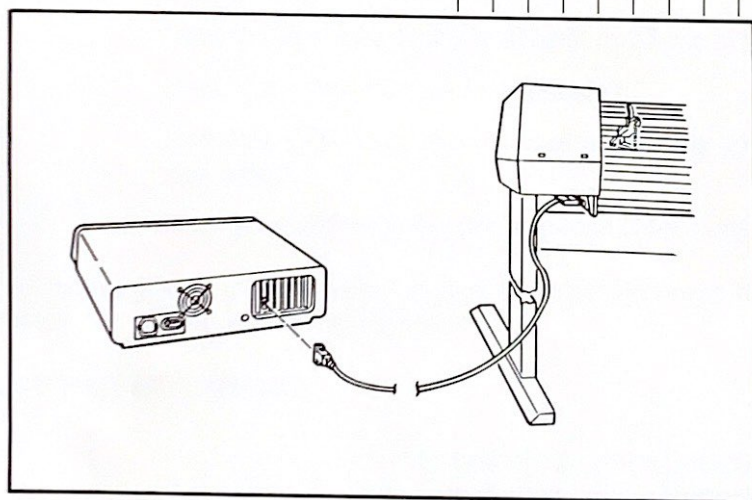
1. Turn the plotter power off.
2. Squeeze the top and bottom locking tabs on both sides of the cartridge (Figure 1-13) and at the same time pull outward on the cartridge until it clears the locking tab holes.
3. Remove the cartridge.

1026 Plotter Memory Expansion Cartridge Removal

To remove the memory expansion cartridge proceed as follows:

- | | |
|---|---|
| 1. Turn the plotter power off. | Squeeze the locking tabs together at the end closest the plotter. |
| 2. At the plotter, remove the bolt on the bottom of the right end bell assembly (retaining nut is captive and secured to the end bell). See Figure 1-14. | 5. Remove the cartridge. |
| 3. Lower the bottom half of the end bell assembly, exposing the area of the memory expansion cartridge. | 6. Reinstall the end bell assembly. |
| 4. Squeeze the top and bottom locking tabs on both sides of the cartridge (Figure 1-13) and at the same time pull outward on the cartridge until it clears the locking tab holes. | |

CHAPTER TWO CONNECTING THE PLOTTER



CHAPTER 2

CONNECTING THE PLOTTER

INTRODUCTION

The Artisan Plus plotters communicate with a host computer via an RS-232C interface. Since there are many variations of this interface, the following variables must be considered when connecting the plotter to the host:

- Is the host interface configured for Data Terminal Equipment (DTE) or Data Communications Equipment (DCE)?
 - DTE-Data is transmitted on pin 2 and received on pin 3.
 - DCE-Data is transmitted on pin 3 and received on pin 2.
- Does the host interface use a 9-pin or 25-pin connector?
- Is the host connector male or female?
- Are all the RS-232C signals used or are only some of the signals used?
- Does your software require a special cable configuration?

This chapter provides information to allow the user to connect the RS-232C interface between the plotter and the host computer.

PLOTTER INTERFACE

The Artisan Plus plotter interface is configured as Data Communications Equipment (DCE). The connector is a 25-pin female (Figure 2-1). Table 2-1 shows the pin assignments.

HOST COMPUTERS

Information is provided to support the following most commonly used host computers:

- IBM PC or equivalent (Figure 2-2)
- IBM XT or equivalent (Figure 2-2)
- IBM AT or equivalent (Figure 2-2)
- IBM PS/2 or equivalent (Figure 2-3)
- DEC VAX (Figure 2-4)
- Apple Macintosh II (Figure 2-5)

CABLES/CONNECTORS

Cable diagrams are provided for the following cable/connector configurations:

- 25-pin male (DCE) to 25-pin female (DTE) - Table 2-2
- 9-pin female adapter (DTE) to 25-pin male (DCE) - Table 2-3
- 25-pin female (DCE) to 25-pin male (DCE) - Table 2-4
- 8-pin male micro DIN (round) to DB-25 pin male "Mac Plus to ImageWriter One" (available from your dealer) - Table 2-5
- 25-pin male to 25-pin female "CalComp _ Macintosh Adapter Cable" (CalComp P/N 754050-3, Rev B) - Table 2-6

CABLE CONNECTION

Using the information in Tables 2-2 through 2-4 and Figures 2-2 through 2-5, obtain or fabricate the appropriate cable and/or adapter. The cable length must not exceed 50 feet.

CAUTION

*Double-shielded cable must be used.
Failure to comply violates FCC and
VDE Class B regulations.*

CABLE CONNECTION

Table 2-2. INTERFACE CABLE, CALCOMP P/N 11772-0250, -0102*

EIA Circuit	CCITT Circuit	RS-232C Cable					
		DTE Host Male		25-Pin Female		25-Pin Male	
		Term	Pin	Pin		Pin	Female Pin
AA	101	GND	01	01	→	01	01
BB	103	TD	02	02	→	02	02
BA	104	RD	03	03	←	03	03
CA	105	RTS	04	04	→	04	04
CB	106	CTS	05	05	←	05	05
CC	107	DSR	06	06	←	06	06
AB	102	SG	07	07	←	07	07
CF	109	CD	08	08	←	08	08
			09	09		09	09
			10	10		10	10
			11	11		11	11
SCF	122		12	12		12	12
SCB	121		13	13		13	13
SBA	118		14	14		14	14
DB	114	SCT	15	15		15	15
SBB	119		16	16		16	16
DD	115	SCR	17	17		17	17
			18	18		18	18
SCA	120		19	19		19	19
CD	108.2	DTR	20	20	→	20	20
CG	110	SQ	21	21		21	21
CE	125	RI	22	22		22	22
CH	111		23	23		23	23
DA	113	TRC	24	24		24	24
			25	25		25	25

* -0250 = 25 feet
-0102 = 10 feet

Table 2-3. INTERFACE CABLE, 9-PIN FEMALE TO 25-PIN MALE

DTE Host Male		RS-232C Cable		DCE Plotter Female	
		9-Pin Female	25-Pin Male		
Term	Pin	Pin	Pin	Pin	Pin
TD	03	03	01	01	01
RD	02	02	02	02	02
RTS	07	07	03	03	03
CTS	08	08	04	04	04
DSR	06	06	05	05	05
SG	05	05	06	06	06
CD	01	01	07	07	07
			08	08	08
			09	09	09
			10	10	10
			11	11	11
			12	12	12
			13	13	13
			14	14	14
			15	15	15
			16	16	16
			17	17	17
			18	18	18
			19	19	19
DTR	04	04	Not used	20	20
RI	09	09	Not used	21	21
			22	22	22
			23	23	23
			24	24	24
			25	25	25

CABLE CONNECTION

Table 2-4. INTERFACE CABLE, 25-PIN FEMALE TO 25-PIN MALE CROSSOVER

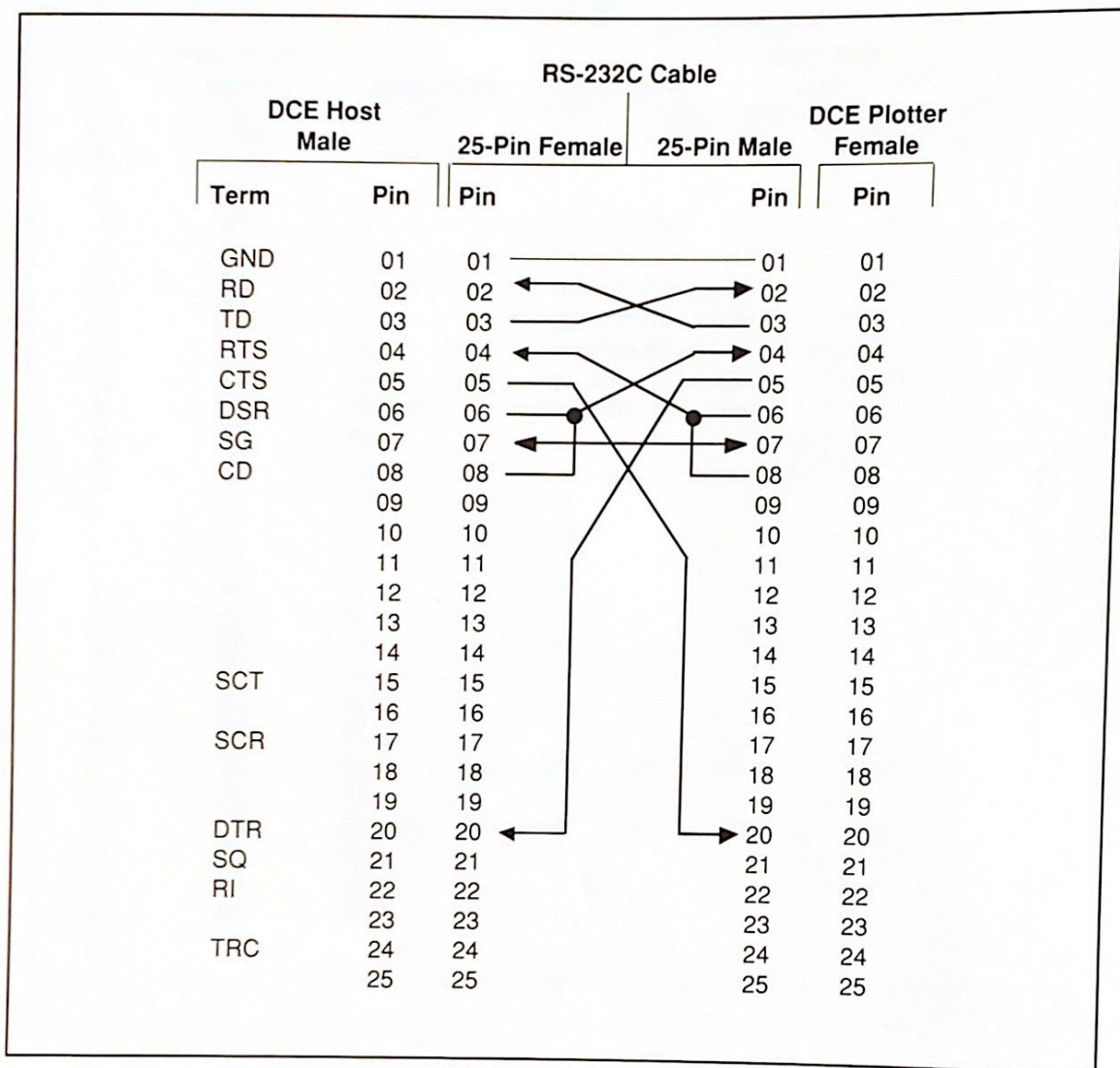
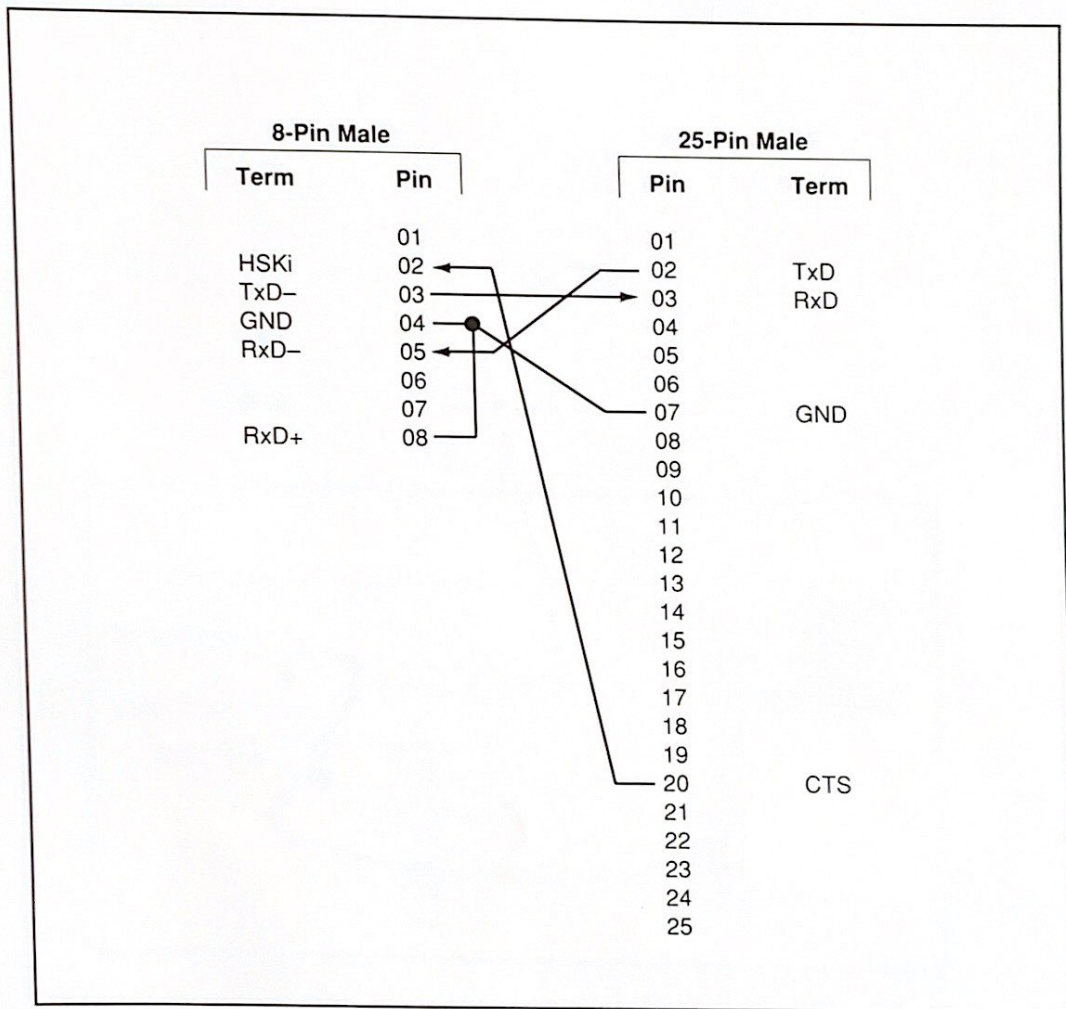


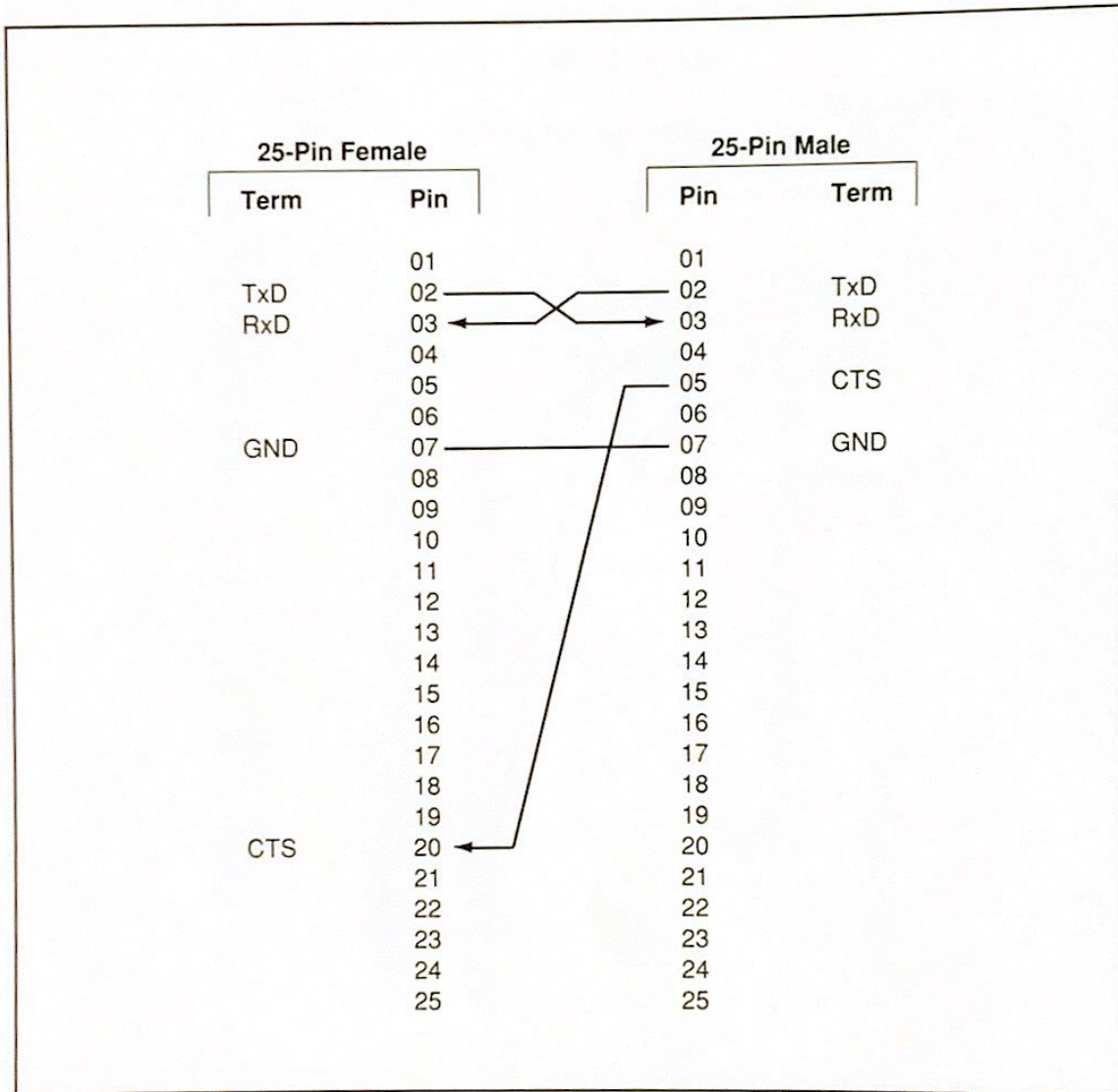
Table 2-5. INTERFACE CABLE, 8-PIN MALE TO 25-PIN MALE
(IMAGEWRITER ONE CABLE)



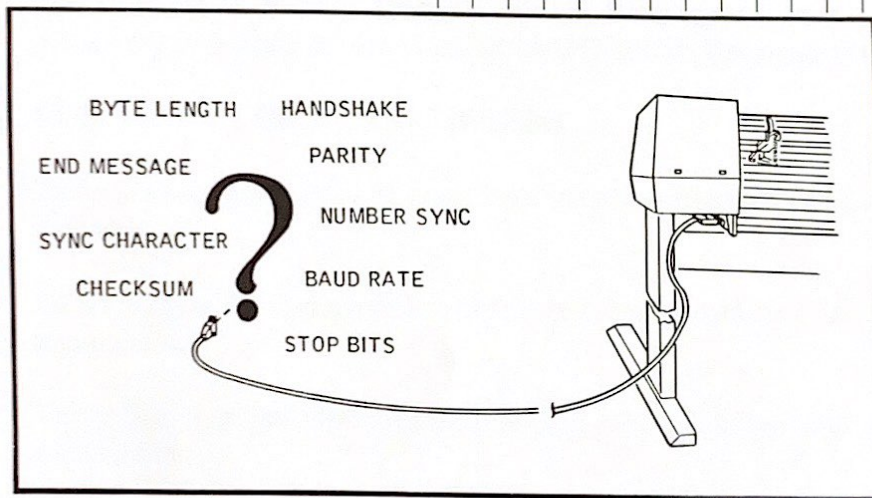
CABLE CONNECTION

**Table 2-6. INTERFACE CABLE, RS-232C SERIAL PORT
CALCOMP P/N 754050-3 (BC-909-021)**

2



CHAPTER THREE CONFIGURING THE PLOTTER



CHAPTER 3

CONFIGURING THE PLOTTER

INTRODUCTION

The plotter is compatible with computer-aided design (CAD) programs that use any of the following formats:

- 960 Mode (CalComp 960 Data Format) - used with CAD programs supporting older plotters
- PCI Mode (CalComp Online Controller Format) - used with CAD programs supporting newer model plotters
- CPGL Mode (CalComp Plotter Graphics Language) - used with CAD programs supporting the Hewlett-Packard Graphics Language (HPGL).

HOST COMMUNICATION PARAMETERS

- Table 3-1 lists the parameter type, associated specifications, and the factory defaults.
- Table 3-2 lists the various PCI compatible software packages and associated parameters.
- Table 3-3 lists the 960 compatible software packages and associated parameters.

To change parameters, refer to Figure 3-1. Figure 3-1 is a flow diagram that guides you to the appropriate table and procedures to allow changes based on the software package installed.

ABOUT THIS DOCUMENT

This document is organized into the sections listed below. For initial installation, follow the procedures in Chapters 1 through 3. For subsequent operations, use the procedures in Chapters 4 through 8.

Chapter 1	Getting Started - Familiarizes the user with the plotter and describes how to load pens and media and run a confidence plot.
Chapter 2	Connecting the Plotter - Describes how to connect an appropriate RS-232C interface cable between the plotter and a host computer.
Chapter 3	Configuring the Plotter - Describes how to configure the plotter for host communications using a variety of different software packages.
Chapter 4	Plotter Set-up and Cut-sheet Operations - Describes how to set up the plotter and operate in cut-sheet mode. A brief tutorial is provided to guide the first-time user through the operation.
Chapter 5	Roll Media Operations - Describes procedures used in 1026 roll-mode plotting.
Chapter 6	Pens and Media - Describes how to select the appropriate pens and media combinations.
Chapter 7	Maintenance - Describes how to clean the plotter and maintain and handle liquid ink pens.
Chapter 8	Problem Solving - Serves as a guide to solve problems as a result of indicated symptoms.

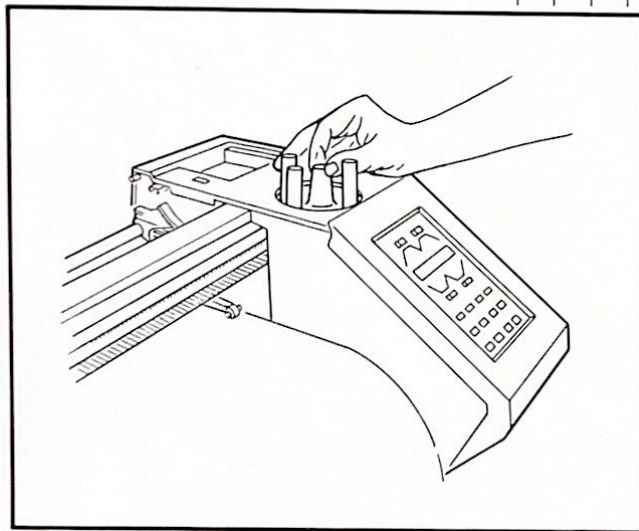
Appendix A	Specifications
Appendix B	CPGL Information
Appendix C	User Parameter Charts
Appendix D	Obtaining Supplies/Service
Glossary	
Index	

SAFETY INSTRUCTIONS

- Follow all warnings and instructions marked on the plotter.
- Unplug the plotter from the power outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use the plotter near water.
- If the type of power is not known prior to installing the plotter, consult your authorized dealer or local power company.
- Plotters have a three-wire grounding type plug (a plug having a third grounding pin). Such plugs fit into a grounding-type power outlet only. This is a safety feature. If you are unable to insert the plug into the power outlet, contact your electrician.
- Do not allow anything to rest on the power cord. Do not locate the plotter power cord where it can be walked on.
- If an extension cord is used with the plotter, ensure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating.
- Never push objects of any kind into the internal mechanisms of the plotter. Fire or electric shock may result.
- Except as explained elsewhere in this guide, do not attempt to service the plotter yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or put others at risk. Refer all servicing to a Sales and Support Office listed in Appendix D.

-
- If any of the following conditions exist, unplug the plotter from the power outlet and refer servicing to a Sales and Support Office listed in Appendix D.
 - The power cord or plug is damaged or frayed.
 - Liquid is spilled into the plotter.
 - The plotter is exposed to rain or water.
 - The plotter does not operate normally when operating instructions are followed. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and require extensive work by a qualified technician to restore the product to normal operation.
 - The plotter is dropped or the cabinet is damaged.
 - The plotter exhibits a distinct change in performance, indicating a need for service.

CHAPTER ONE GETTING STARTED



CHAPTER 1

1

GETTING STARTED

INTRODUCTION

This chapter familiarizes the user with the Artisan Plus plotter (Figure 1-1 illustrates the Model 1023 plotter, Figure 1-2 illustrates the Model 1025 plotter and Figure 1-3 illustrates the Model 1026 plotter) and describes how to load pens and media and run a confidence plot. In addition, procedures are provided for installing the optional memory expansion cartridge.

INTRODUCTION

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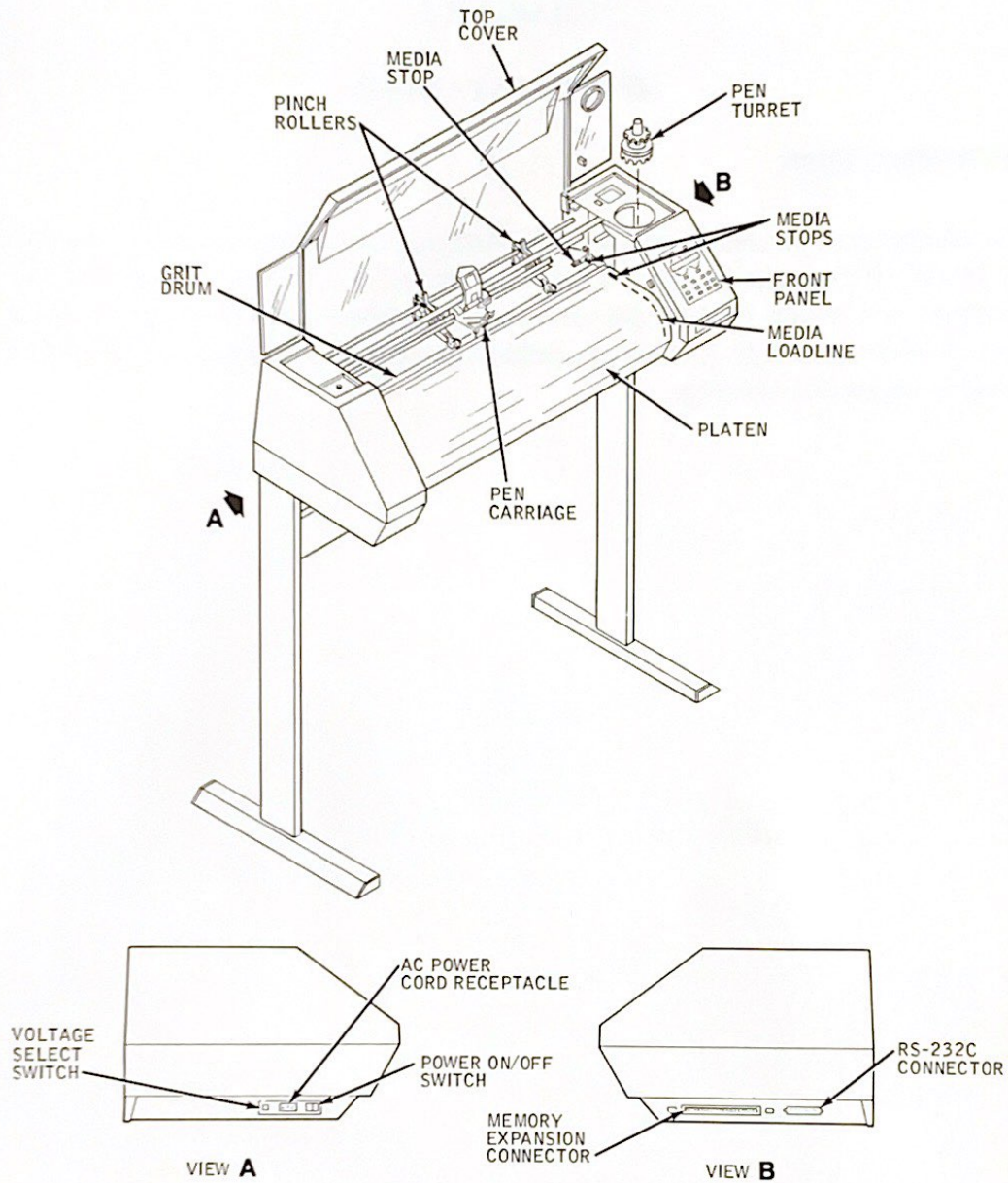


Figure 1-1. Artisan Plus 1023 Plotter

- **Pen Turret** - Holds up to eight pens
- **Pen Carriage** - Selects pen from pen turret
- **Media Loadline and Stops** - Used during media loading sequence to align a sheet of media
- **Pinch Rollers** - Holds media in place during sizing and plotting. Pulling lever towards you raises pinch rollers. Pushing lever away from you lowers pinch rollers.
- **Front Panel** - Contains controls and display to allow user to control the various modes and options of plotter operations
- **Platen** - Provides surface for holding and guiding media while performing plotting
- **Vacuum Fan** - (internal not shown) - Creates a vacuum to assist in holding media flat on platen during plotting and loading
- **Grit Drum** - Moves the media during plotting
- **RS-232C Connector** - Accepts RS-232C interface cable connecting the plotter to a host computer
- **Memory Expansion Connector** - Accepts optional memory expansion cartridge
- **Voltage Select Switch** - Selects proper voltage level for the plotter

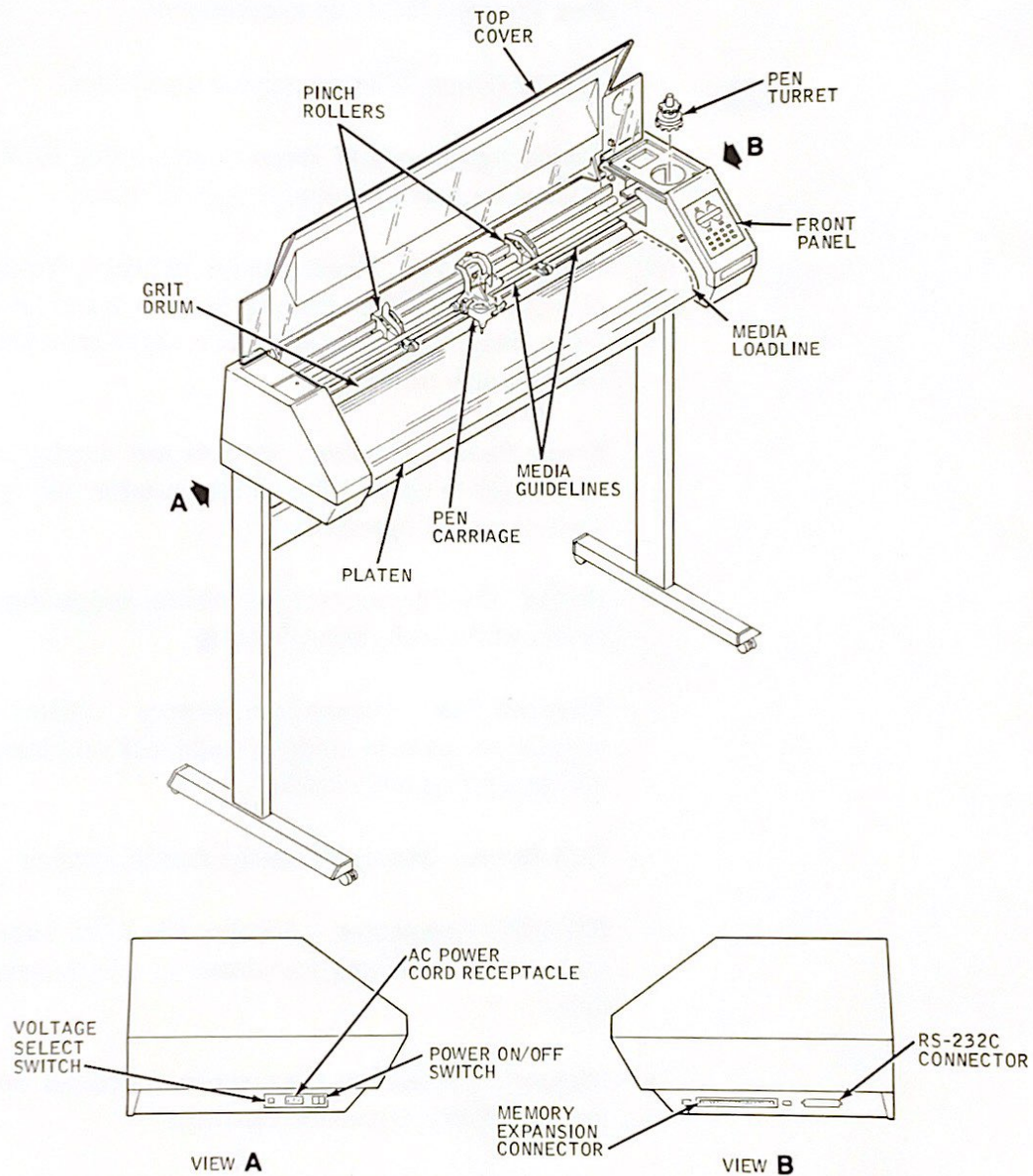


Figure 1-2. Artisan Plus 1025 Plotter

- **Pen Turret** - Holds up to eight pens
- **Pen Carriage** - Selects pen from pen turret
- **Media Loadlines** - Used during media loading sequence to align a sheet of media
- **Pinch Rollers** - Holds media in place during sizing and plotting. Pulling lever towards you raises pinch rollers. Pushing lever away from you lowers pinch rollers.
- **Front Panel** - Contains controls and display to allow user to control the various modes and options of plotter operations
- **Platen** - Provides surface for holding and guiding media while performing plotting
- **Vacuum Fan** - (internal not shown) - Creates a vacuum to assist in holding media flat on platen during plotting and loading
- **Grit Drum** - Moves the media during plotting
- **RS-232C Connector** - Accepts RS-232C interface cable connecting the plotter to a host computer
- **Memory Expansion Connector** - Accepts optional memory expansion cartridge
- **Voltage Select Switch** - Selects proper voltage level for the plotter

INTRODUCTION

1

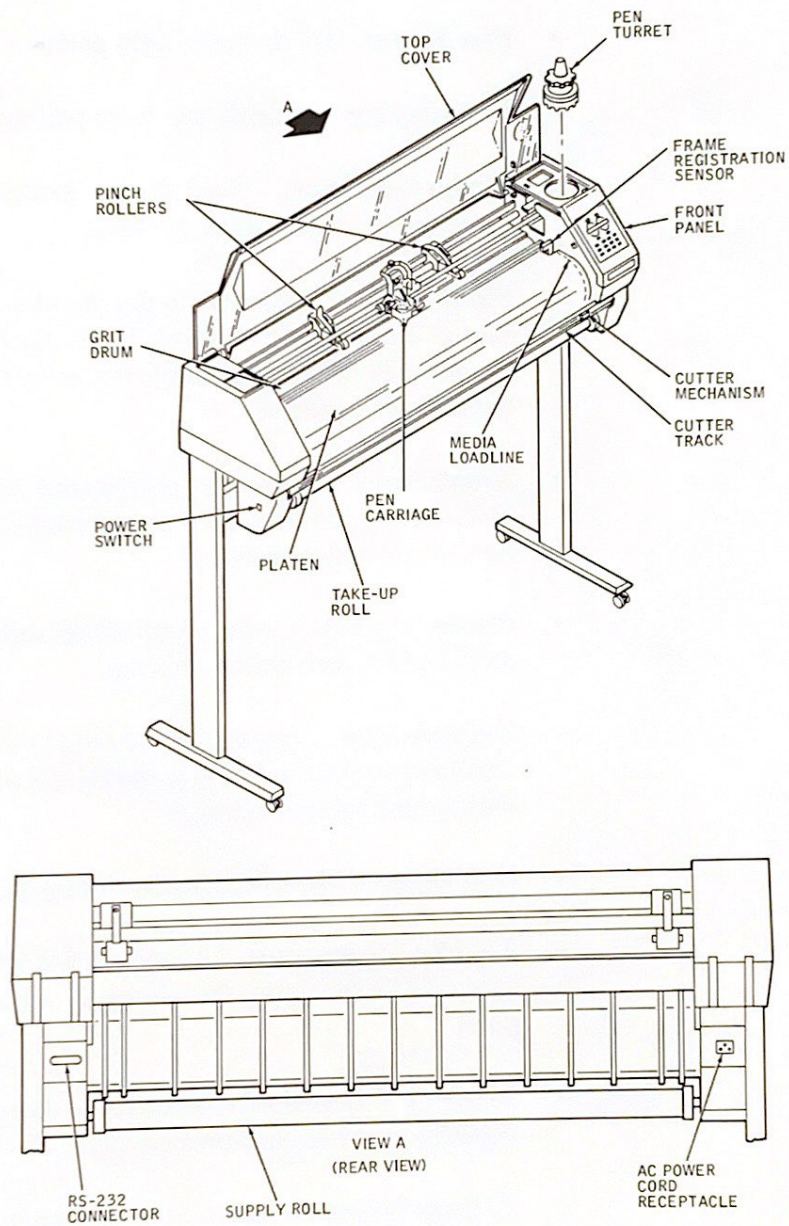


Figure 1-3. Artisan Plus 1026 Plotter

- **Pen Turret** - Holds up to eight pens
- **Pen Carriage** - Selects pen from pen turret
- **Media Loadlines** - Used during sheet media loading sequence to align a sheet of media
- **Pinch Rollers** - Holds media in place during sizing and plotting. Pulling lever towards you raises pinch rollers. Pushing lever away from you lowers pinch rollers.
- **Frame Registration Sensors** - Provides compensation factor for frame to frame media alignment by sensing location of frame registration marks.
- **Front Panel** - Contains controls and display to allow user to control the various modes and options of plotter operations
- **Take-up Roll** - Roll media take-up assembly
- **Supply Roll** - Roll media supply assembly
- **Cutter Track** - Provides straight track for media cutter mechanism
- **Cutter Mechanism** - Manual media cutter with double edged blade that cuts forward or backward
- **Platen** - Provides surface for holding and guiding media while performing plotting
- **Vacuum Fan** - (internal not shown) - Creates a vacuum to assist in holding media flat on platen during plotting and loading

INTRODUCTION

1

- **Grit Drum** - Moves the media during plotting
- **RS-232C Connector** - Accepts RS-232C interface cable connecting the plotter to a host computer

INSPECTION

The plotter and accessories are inspected prior to shipment. Compare the accessories received with the accessories listed in Tables 1-1 and 1-2. If any accessories are missing, contact a CalComp Sales and Support Office listed in Appendix D.

Table 1-1. ACCESSORIES LIST FOR ARTISAN PLUS 1023 AND 1025

Item	Quantity	Part Number
A1-600 22-lb bond paper	6 sheets	10311-9244
WLB pen sampler (2 pens)	1	12985-0012
WL pen sampler (2 pens)	1	12986-0011
Black pen caps	12	649-420-7
Pen turret	1	722300-1
Pen Plotter Supplies Guide	1	G0270-SUP
Pen Plotter Supplies Catalog	1	G0279-CAT
Guide to Liquid Inking	1	M0012-240
Power cable	1	
User's Guide	1	M0020-080
Quick Reference Guide	1	M0020-090

Table 1-2. ACCESSORIES LIST FOR ARTISAN PLUS 1026

Item	Quantity	Part Number
A1-600 22-lb bond paper	6 sheets	10311-9244
WLB pen sampler (2 pens)	1	12985-0012
WL pen sampler (2 pens)	1	12986-0011
Black pen caps	12	649-420-7
Pen turret	1	722300-1
Pen Plotter Supplies Guide	1	G0270-SUP
Pen Plotter Supplies Catalog	1	G0279-CAT
Guide to Liquid Inking	1	M0012-240
Power cable	1	
User's Guide	1	M0020-080
Quick Reference Guide	1	M0020-090
Media take-up core	1	14850-0010
Roll plotting media, 22-lb bond	1	14921-0056

If any item is received damaged, contact a CalComp Sales and Support Office listed in Appendix D, and file a claim with the carrier if necessary.

NOTE

An RS-232C interface cable is required to connect the plotter to a host computer. Because the cable requirements vary from computer to computer, this cable must be purchased separately. Refer to Chapter 2 to determine the correct cable for your requirements.

The following options may be ordered by calling 1-800-CALCOMP.

Table 1-3. EXTRA COST OPTIONS

Item	Part Number
1023 reticle	654880-4
1025/1026 reticle	13112-0016
Additional pen turret	722300-1
1023 Premium Pen Kit (includes reticle)	649900-8
1025/1026 Premium Pen Kit (includes reticle)	15995-0054
One-megabyte memory expansion cartridge and ADI driver	11961-0012
Two-megabyte memory expansion cartridge and ADI driver	11961-0020
HCBS software	Call CalComp
Interface cable	See Chapter 2

POWERING ON THE PLOTTER

1023 AND 1025 PLOTTERS

The plotter is shipped with the voltage select switch set at 230 Vac. However, compare the voltage setting on the voltage select switch (Figure 1-1 or Figure 1-2) with Table 1-4.

Table 1-4. VOLTAGE SELECT SWITCH

Outlet Voltage	Plotter Select Switch
180 Vac to 264 Vac 90 Vac to 132 Vac	230 Vac 115 Vac

If necessary, slide the voltage select switch to the appropriate setting. Check the wall plug end of the power cable. If it does not mate with the wall outlet, contact a CalComp Sales and Support Office listed in Appendix D.

1026 PLOTTER

The 1026 plotter is configured to accept an input voltage range from 90 Vac to 264 Vac. There is no voltage select switch to set on the Artisan 1026.

WARNING

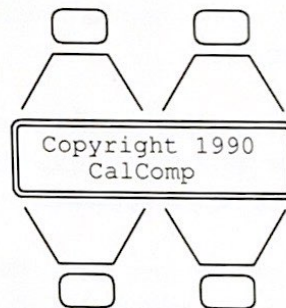
Use the power cable with a properly grounded receptacle to avoid electrical shock.

ALL ARTISAN PLUS MODELS

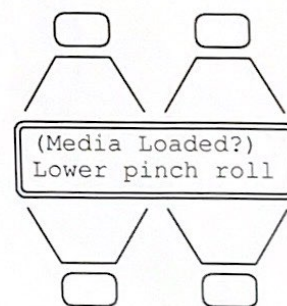
1

To connect the power cable and turn on the plotter, proceed as follows.

1. Insert the prongless (female) end of the power cable into the power socket on the left side (1023/1025) or rear (1026) of the plotter.
 2. Insert the wall power plug (male) into a grounded power outlet.
 3. Raise the plotter cover.
 4. Raise the pinch rollers by pulling either pinch roller lever towards you.
 5. At the left side (1023/1025) or front (1026) of the plotter, press the MAIN POWER switch to 1. Pressing the end marked 1 turns the power on. Pressing the end marked 0 turns the power off.
 6. When power is applied, the following occurs:
- The plotter performs initializing routines and the following is momentarily displayed on the front panel:



- At the completion of the power-on sequence, the following is displayed:



LOADING PENS

The plotter can operate with any of the pens specified in Chapter 6. However, for this procedure use the pens from the accessories kit. Pens are loaded in pen positions 1 through 8 on the pen turret. To load one or more pens, proceed as follows.

1. Raise the top cover and lift the pen turret from its housing. (Refer to Figure 1-4.) Push the pen carriage to the left if it interferes with pen turret removal.
2. Select a liquid ball (marked WLB) pen from the sample pen kit supplied with the plotter.
3. Insert the pen into the turret as shown in Figure 1-5. If liquid ink pens are used, it is necessary to change the turret pen caps. Refer to the procedure at the end of Chapter 6 for changing turret pen caps.
4. Holding the pen at an angle, place the pen tip into the pen cap and depress the pen cap holder by pushing down on the top of the pen.
5. Move the pen cap into the turret pen jaws and slide the rim into the slot as shown in Figure 1-5. If the pen is loaded correctly, the rim should rest on top of the jaws.

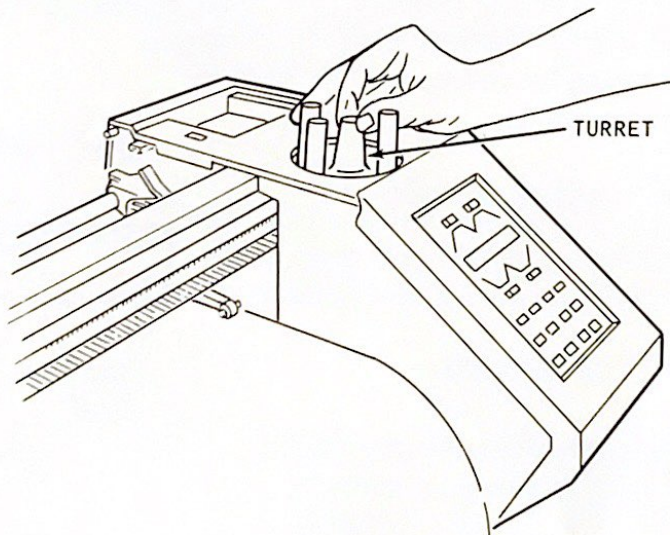


Figure 1-4. Loading the Turret

6. Repeat the procedure for any additional pens to be loaded. The turret does not need to be fully loaded with pens to operate correctly.

NOTE

When using an applications program, note the pen color and type placed in each numbered pen position, so that you can tell the software which pen to use for various parts of the plot.

INSERTING THE PEN TURRET

The pen turret fits on a spindle located in the turret well. (See Figure 1-4.) To load the turret, proceed as follows.

1. Raise the top cover.
2. Lower the loaded turret into the turret well until it is seated. Push the

pen carriage out of the way if it hinders turret loading. The turret does not have to be oriented or indexed on the spindle.

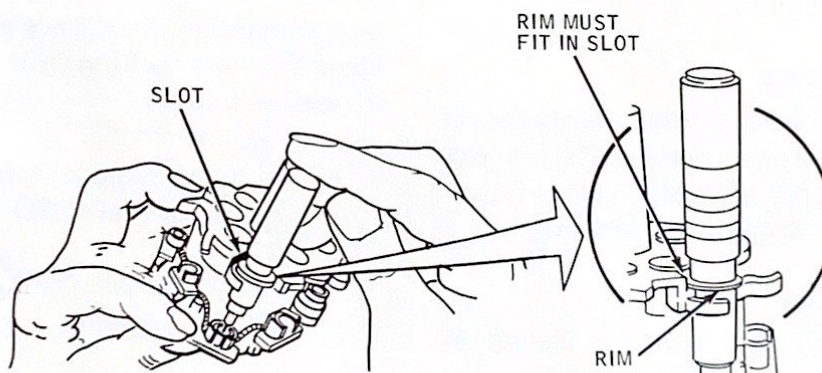


Figure 1-5. Loading Pens

FRONT PANEL DESCRIPTION

The following procedure provides a brief overview of the front panel sufficient to perform a confidence plot. Chapter 4, Plotter Set-up and Cut-sheet Operations, contains a detailed description of the various modes of operation of the plotter.

The front panel (Figure 1-6) contains the following elements:

- Liquid Crystal Display (LCD)
- Four soft keys
- EXIT key
- NEXT key
- Numeric/axis direction keys

LIQUID CRYSTAL DISPLAY(LCD)

The LCD can display the following:

- Menu options
- Messages
- Prompts

SOFT KEYS

The soft keys are used to select the corresponding menu options. The use of the soft keys and the menu options forms a versatile, menu-driven system.

NEXT KEY

The NEXT key is used to display the next page of a multipage menu.

EXIT KEY

The EXIT key is generally used to exit a menu or a mode of operation.

NUMERIC/AXIS DIRECTION KEYS

(Not used during confidence plot)

These keys are multifunction keys and are used as follows:

- To enter numeric values when prompted by the LCD
- To select a pen during the pen selection sequence
- To position the pen carriage in the direction indicated on the key

FRONT PANEL DESCRIPTION

Throughout the remainder of this document, whenever it is necessary to press a soft key as a result of an operation, the appropriate display is shown, and the associated soft key is shown shaded.

Example:

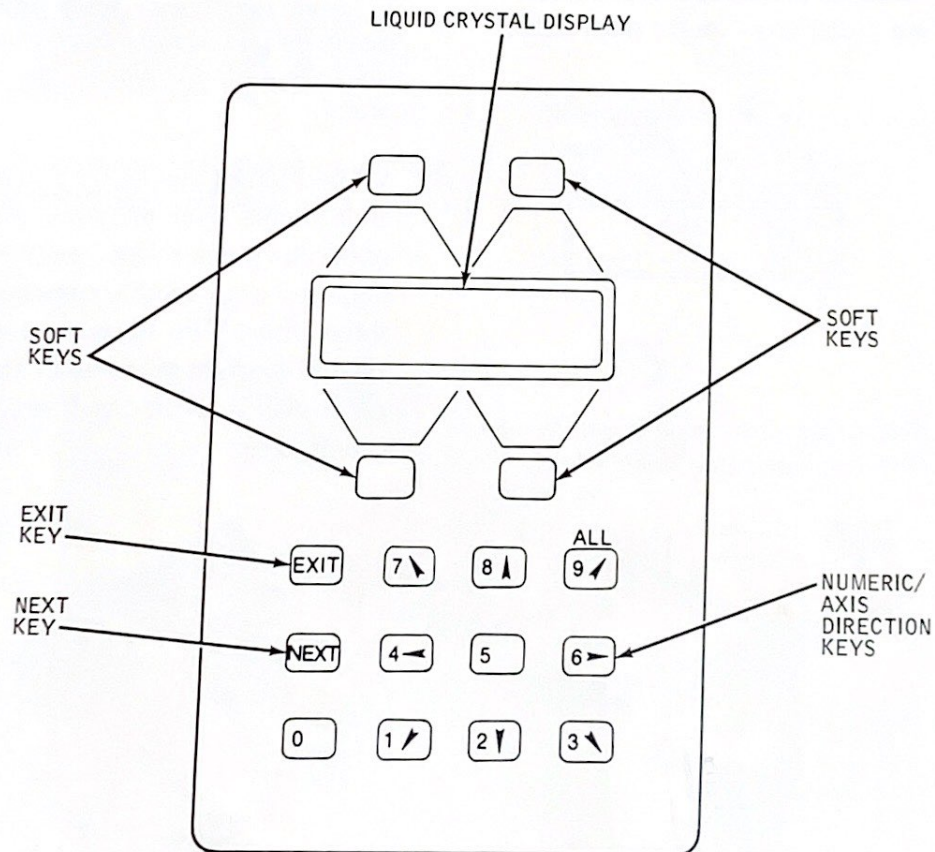
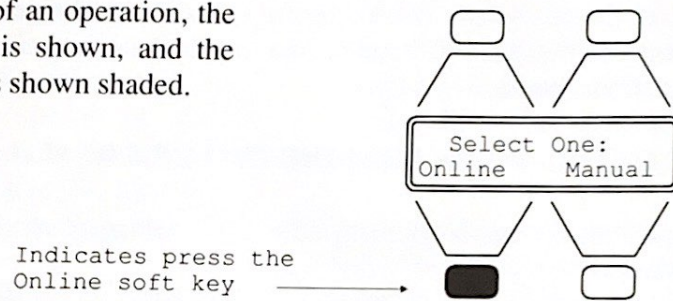


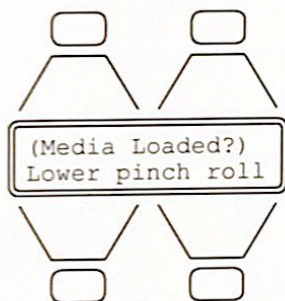
Figure 1-6. Front Panel

LOADING PLOTTING MEDIA

Plotting media can be any of the material specified in Chapter 6. However, for this procedure use the A1-600 bond media supplied in the accessories kit. To load plotting media, proceed as follows.

1023 PLOTTER MEDIA LOADING PROCEDURE (Refer to Figure 1-7)

1. Ensure that power is applied to the plotter.
2. Raise the plotter cover. The following is displayed on the front panel:
3. Obtain media to be loaded.

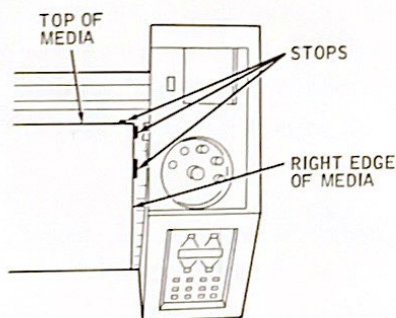


This display is prompting you to load media and lower the pinch rollers.

NOTE

To avoid interference while loading media, the pen carriage can be moved manually while the pinch rollers are raised.

4. While holding media by its edges, slide media over the front platen, under the pinch rollers and the pen carriage until media contacts the three stops. Two stops are located behind the right pinch roller and the other stop is located in front of the pinch roller.



VIEW A

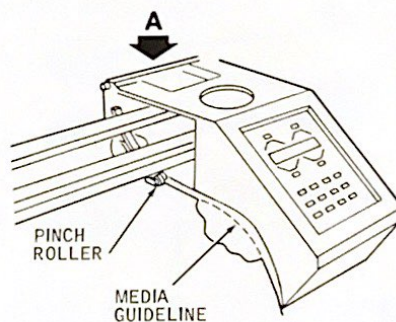


Figure 1-7. 1023 Plotter Media Alignment

5. Align edge of media to media guideline (cut mark located at front of platen).
6. To square up the sheet, push the upper right corner of the sheet against the stops as shown in Figure 1-7, View A and align the right edge of the sheet along media guidelines.
7. With the pinch rollers up, slide the left pinch roller over the left edge of the sheet. Move the roller by its "body" rather than by its lever. (Refer to Figure 1-8.)
8. Position the left pinch roller approximately 1/10 inch (2.5 mm) from the left edge of the sheet, as shown in Figure 1-8.
9. Lower the pinch rollers by pushing one of the pinch roller levers towards the rear of the plotter. This action lowers both pinch rollers.
10. Push down gently on the pinch roller lever after lowering the pinch rollers to ensure firm engagement of roller with media.

NOTE

When the plotter is not in use, raise the pinch rollers to prevent the rubber rollers from developing flat spots.

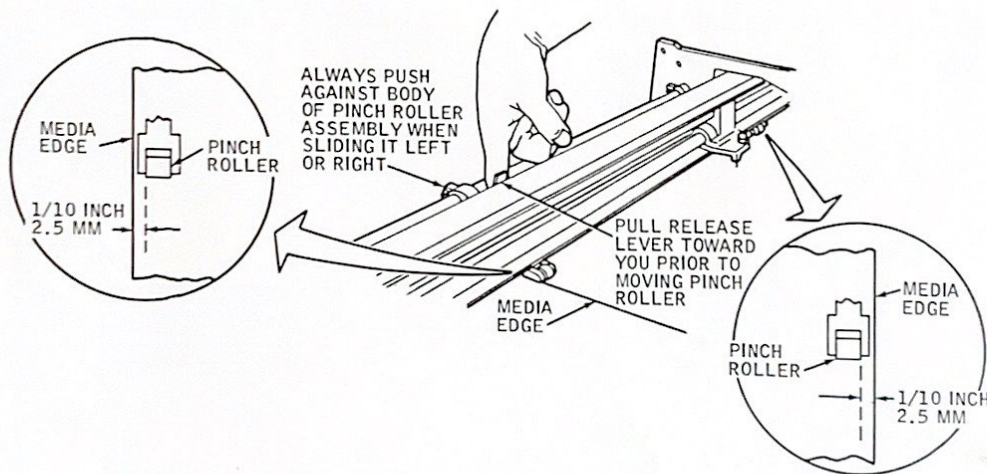
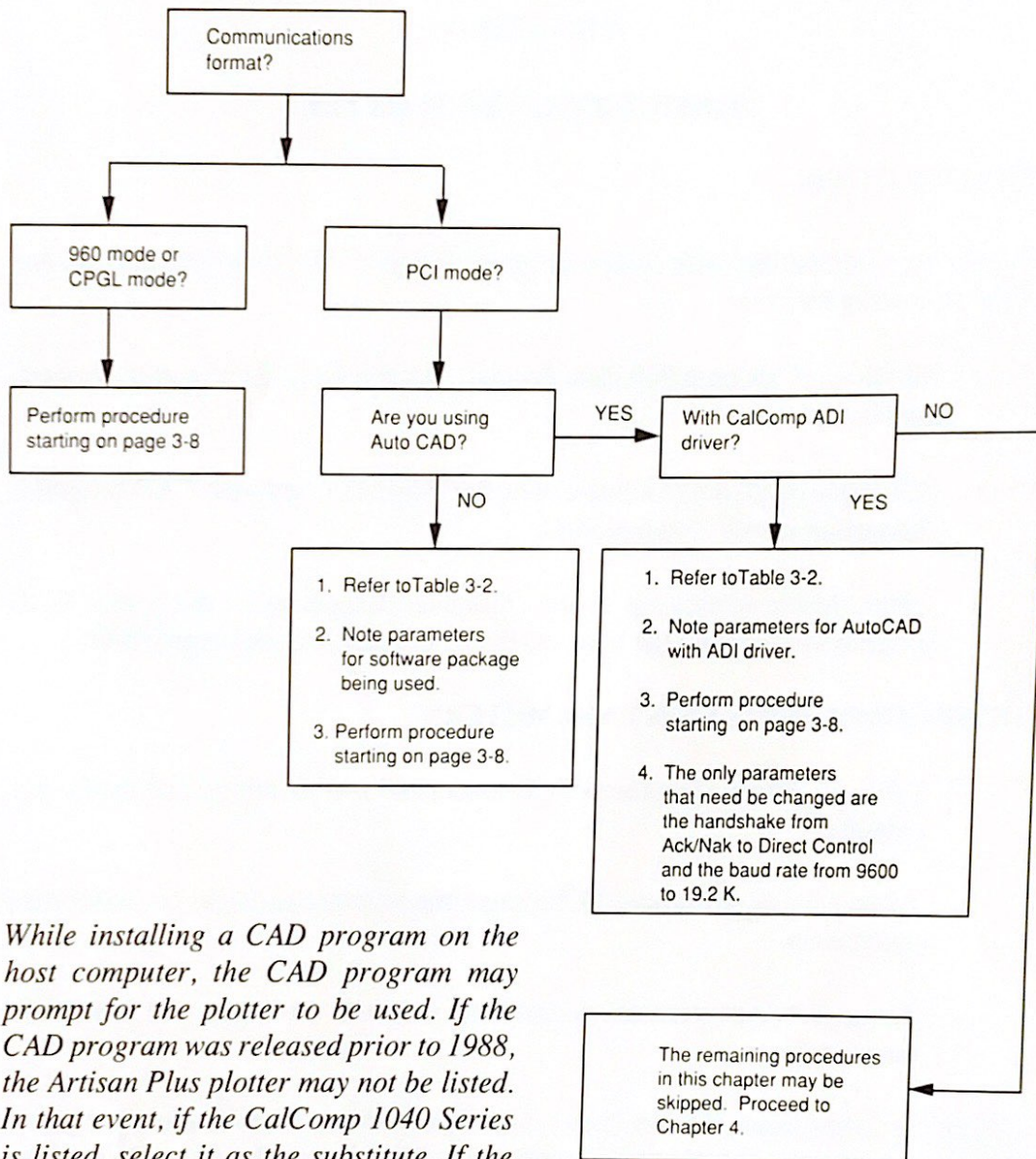


Figure 1-8. 1023 Pinch Rollers

HOST COMMUNICATION PARAMETERS



While installing a CAD program on the host computer, the CAD program may prompt for the plotter to be used. If the CAD program was released prior to 1988, the Artisan Plus plotter may not be listed. In that event, if the CalComp 1040 Series is listed, select it as the substitute. If the 1040 Series is not listed, refer to your software manufacturer's requirements.

Figure 3-1. Configuration Guide

Table 3-1. ARTISAN COMMUNICATION PARAMETERS

Parameter	Specification	Default
Format	PCI, 960, CPGL	PCI Mode
Baud Rate	110, 150, 300, 600, 1200, 2400, 4800, 9600, 19.2K	9600
Byte Length***	7 or 8 bit	7 bit
Stop Bits***	1 or 2	1
Parity***	odd, even, no (none)	even parity
Handshake*	Ack/Nak, Xon/Xoff, Direct Control	Ack/Nak
Sync Char*	0 to 127	22
Number Sync*	1 or 2	2
End Message*	0 to 31	13
Checksum*	enabled or disabled	enabled
Plotter Types**	7220, 7374, 7375, 7440, 7470, 7475A, 7550, 7570, 7580A, 7580B, 7585A, 7585B, 7586B, 7595A, 7595B	CLCMP

* PCI

** CPGL

*** PCI CPGL

HOST COMMUNICATION PARAMETERS

Table 3-2. PCI FORMAT PARAMETERS

Name	Baud Rate	Byte Length	Stop Bits	Parity	Hand-shake	Sync Char	Number Sync	End Message	Checksum
AMS-TIME	9600	7 bit	1	even	Ack/ Nak	22	2	13	Disabled
ANVILL-1000	9600	8 bit	1	none	Direct Control	2	1	3	Enabled
ARC INFO	9600	8 bit	1	none	Xon/ Xoff	2	1	3	Disabled
ARCOS	4800	8 bit	1	none	Ack/ Nak	2	1	3	Enabled
ARRIS	9600	8 bit	1	none	Ack/ Nak	12	1	13	Disabled
AUTOCAD	9600	7 bit	1	even	Ack/ Nak	22	2	13	Enabled
AUTOCAD with ADI driver *	19200	7 bit	1	even	Direct Control	22	2	13	Enabled
AUTOCAD .PLT files	9600	7 bit	1	even	Direct Control	22	2	13	Enabled
CADCOM	9600	8 bit	1	none	Ack/ Nak	2	1	3	Enabled
CADDY	9600	7 bit	1	even	Direct Control	22	2	13	Enabled
CADKEY (prior to 3.1)	9600	8 bit	1	none	Ack/ Nak	2	1	3	Disabled
CADKEY (after 3.1)	9600	8 bit	1	none	Xon/ Xoff	2	1	3	Disabled
CADLINC	9600	8 bit	1	none	Ack/ Nak	2	1	3	Disabled
CADMASTER	9600	8 bit	1	none	Ack/ Nak	2	1	3	Enabled

*For use with CalComp supplied AutoDesk Interface (ADI). Available only with optional memory expansion cartridge.

HOST COMMUNICATION PARAMETERS

Table 3-2. PCI FORMAT PARAMETERS - Continued

Name	Baud Rate	Byte Length	Stop Bits	Parity	Hand-shake	Sync Char	Number Sync	End Message	Checksum
CADPLUS	9600	7 bit	1	even	Direct Control	2	1	3	Disabled
CADVANCE	9600	8 bit	1	none	Direct Control	2	1	3	Disabled
CASCADE	9600	8 bit	1	none	Direct Control	2	1	13	Disabled
CAED CADD2000	9600	8 bit	1	none	Ack/ Nak	2	1	3	Enabled
CIVIL SOFT (prior to 11/86)	9600	8 bit	1	none	Ack/ Nak	2	2	3	Disabled
CIVIL SOFT (after 11/86)	9600	8 bit	1	none	Direct Control	2	2	3	Disabled
DATA CAD (prior to 3.0)	9600	8 bit	1	none	Ack/ Nak	2	1	3	Enabled
DATA CAD (after 3.0)	9600	8 bit	1	none	Direct Control	2	1	3	Enabled
DESIGN CAD	9600	8 bit	1	none	Direct Control	2	1	3	Disabled
DIAD	9600	8 bit	1	none	Direct Control	2	1	3	Disabled
DOGS	9600	8 bit	1	none	Xon/ Xoff	2	1	3	Enabled
DRAFIX	9600	7 bit	1	even	Xon/ Xoff	22	2	13	Disabled
EASY- DRAFT MACINTOSH	9600	8 bit	1	none	Ack/ Nak	22	2	13	Enabled
EASY- DRAFT NEC	9600	8 bit	1	none	Ack/ Nak	2	2	13	Enabled
EE DESIGNER	9600	8 bit	1	none	Direct Control	2	1	3	Disabled

HOST COMMUNICATION PARAMETERS

Table 3-2. PCI FORMAT PARAMETERS - Continued

Name	Baud Rate	Byte Length	Stop Bits	Parity	Hand-shake	Sync Char	Number Sync	End Message	Checksum
GENERICAD	9600	7 bit	1	even	Xon/Xoff	22	2	13	Disabled
GEOCAM	9600	7 bit	1	none	Ack/Nak	22	2	13	Disabled
HARVARD TOTAL PROJECT MGR	9600	7 bit	1	even	Direct Control	2	1	3	Disabled
IGOS	9600	8 bit	1	none	Ack/Nak	2	1	3	Enabled
MACPLOT (prior to 3.5)	9600	7 bit	1	even	Direct Control	85	2	13	Disabled
MACPLOT (3.5 & above)	9600	7 bit	1	even	Direct Control	2	1	3	Disabled
MCAD	9600	8 bit	1	none	Ack/Nak	2	1	3	Enabled
MEDUSA	9600	8 bit	1	none	Ack/Nak	2	1	3	Enabled
MICRO CADAM	9600	8 bit	1	none	Direct Control	2	1	3	Disabled
MICRO-STATION	9600	8 bit	1	none	Ack/Nak	2	1	3	Disabled
MINICAD	9600	7 bit	1	even	Direct Control	2	1	3	Disabled
ORCAD	9600	8 bit	1	none	Direct Control	2	1	3	Disabled
PALETTE	2400	8 bit	1	none	Ack/Nak	2	1	3	Enabled
POINT LINE *	2400	8 bit	2	none	Direct Control	2	1	3	Disabled

* Requires special cable supplied by Point Line

HOST COMMUNICATION PARAMETERS

Table 3-2. PCI FORMAT PARAMETERS - Continued

Name	Baud Rate	Byte Length	Stop Bits	Parity	Handshake	Sync Char	Number Sync	End Message	Checksum
PRIMA-VISION	9600	8 bit	1	none	Direct Control	2	1	3	Enabled
PROCAD	9600	8 bit	1	none	Ack/ Nak	2	1	3	Disabled
PRO DESIGN II	9600	8 bit	1	none	Direct Control	2	1	3	Disabled
CS-1	9600	8 bit	1	none	Direct Control	2	1	3	Enabled
ROAD-CALC	9600	8 bit	1	none	Ack/ Nak	2	1	3	Disabled
VERSACAD (prior to 5.3)	9600	8 bit	1	none	Ack/ Nak	126	2	13	Disabled
VERSACAD (after 5.3)	9600	8 bit	1	none	Xon/ Xoff	2	1	3	Disabled

Table 3-3. 960 MODE FORMAT

Company	Software Package	Baud Rate
ISICAD	CADVANCE	9600
Future Net	FUTURE NET	9600
Personal CAD Systems	PCAD-PCB	9600
Computervision	PERSONAL DESIGNER	9600
RACAL REDAC	REDLOG	9600

CHANGING COMMUNICATIONS PARAMETERS

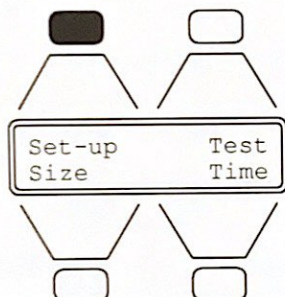
CHANGING COMMUNICATIONS PARAMETERS

The following paragraphs contain the procedures for changing the communications parameters. Each procedure is self-contained. A save procedure is included at the end of this chapter. The soft key used to perform a given function is shaded. To change parameter, proceed as follows:

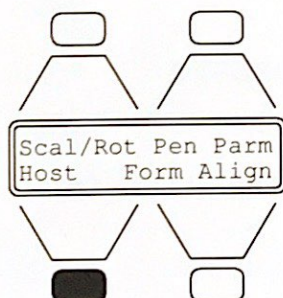
3

General Procedure

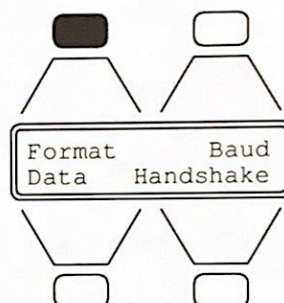
1. Power-on plotter. Load media.
2. Select Manual mode.
3. Press the NEXT key until the following is displayed:



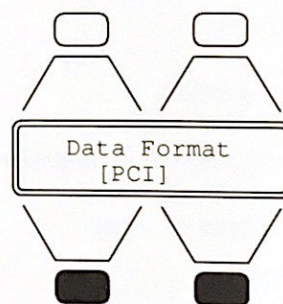
4. Press the Set-up soft key. The following is displayed:



5. Press the Host soft key.



6. Press the Format soft key. The following is displayed:



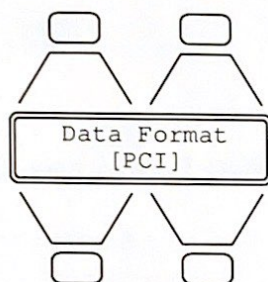
This display indicates the plotter is presently in the PCI format.

CHANGING COMMUNICATIONS PARAMETERS

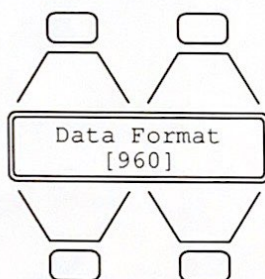
7. To change format type to CPGL or 960, press either of the bottom soft keys until the appropriate format type is displayed.

NOTE

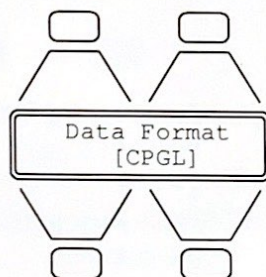
At this point, one of the following is displayed. Locate the page number that corresponds to your format and continue with the procedure at that point.



Page 3-10



Page 3-15

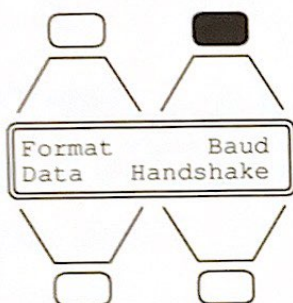


Page 3-17

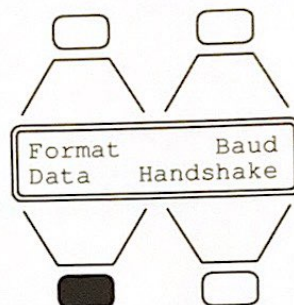
CHANGING COMMUNICATIONS PARAMETERS

PCI Format Changes

1. Press the EXIT key. The following is displayed:

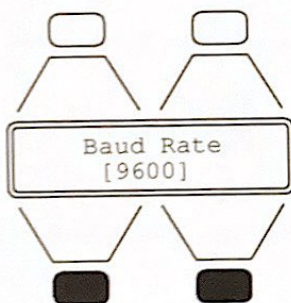


The following is displayed:



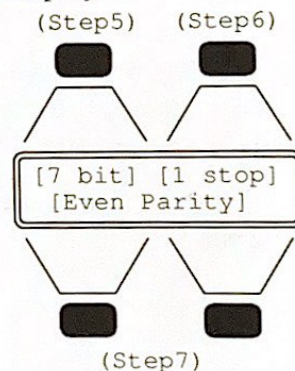
Baud Rate

2. Press the Baud soft key. The baud rate is displayed.



Byte Length, Stop Bits, Parity

4. Press the Data soft key. The following is displayed:

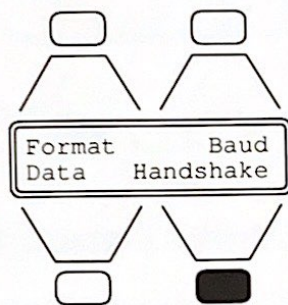


3. Pressing either bottom soft key causes the system to display each baud rate available for the PCI format. When the appropriate baud rate is displayed, press the EXIT key.

5. Press the top left soft key to change the byte length.
6. Press the top right soft key to change the stop bits.

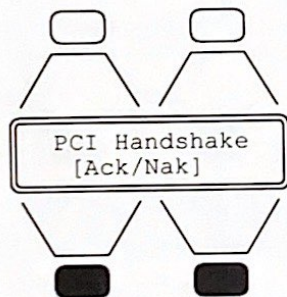
CHANGING COMMUNICATIONS PARAMETERS

7. Press either bottom soft key to change the parity.
8. After the three variables are selected, press the EXIT key. The following is displayed:



Handshake

9. Press the Handshake soft key. The following is displayed:

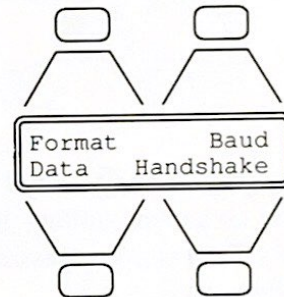


10. Press either bottom soft key. The display indicates one of the follow-

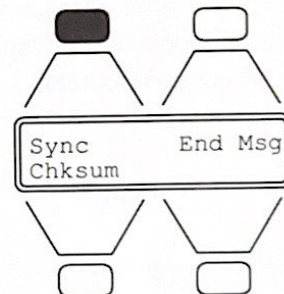
ing each time a bottom soft key is pressed.

- Ack/Nak
- DirCntrl
- Xon/Xoff

11. With the appropriate handshake displayed, press the EXIT key. The following is displayed:



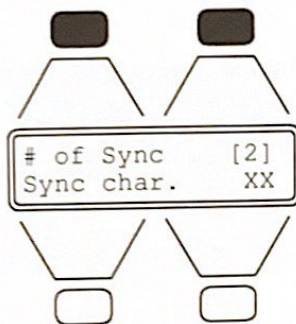
12. Press the NEXT key. The following is displayed:



CHANGING COMMUNICATIONS PARAMETERS

Sync Character

13. Press the Sync soft key. The following is displayed:

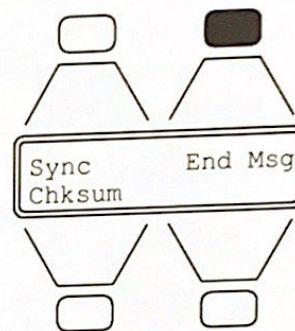


14. Using the numeric keys, enter the sync character number between 1 and 127. It is not necessary to enter leading zeros.

Number of Sync Characters

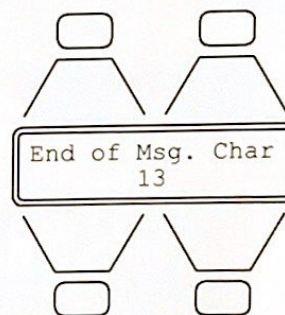
15. Press either top soft key to toggle the number of sync characters between 1 and 2. Select the appropriate number of sync characters.

16. Press the EXIT key. The following is displayed:



End of Message Character

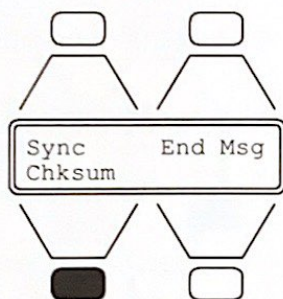
17. Press the End Msg soft key. The following is displayed:



18. Using the numeric keys, enter the appropriate end-of-message character between 0 and 31. It is not necessary to enter leading zeros.

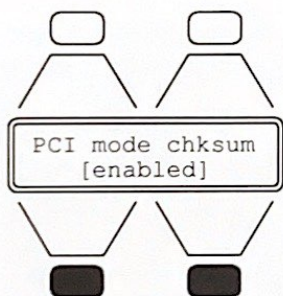
CHANGING COMMUNICATIONS PARAMETERS

19. Press the EXIT key. The following is displayed:



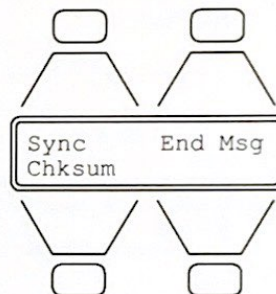
Checksum

20. Press the Chksum soft key. The following is displayed:

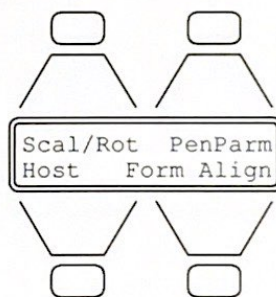


21. Press either bottom soft key to toggle between disabled and enabled.

22. Select the appropriate Checksum mode and press the EXIT key. The following is displayed:



23. Press the EXIT key. The following is displayed:

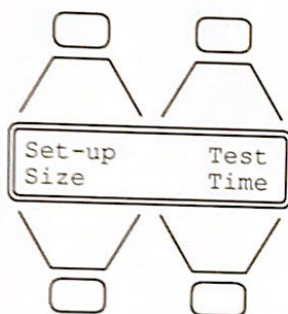


NOTE

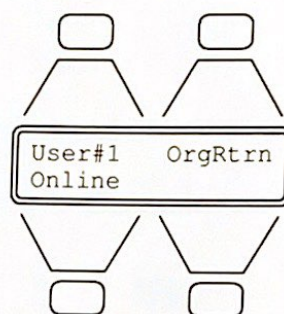
The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

CHANGING COMMUNICATIONS PARAMETERS

24. Press the EXIT key. If changes were made, proceed to the Saving Set-up Changes procedure, (page 3-20). If changes were not made, the following is displayed:



25. Press the EXIT key. The following is displayed:

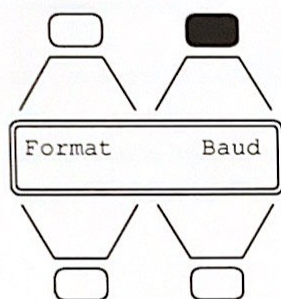


The plotter is now ready for operation. Proceed to Chapter 4.

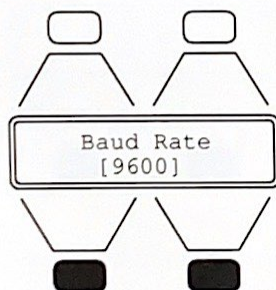
960 Format Changes

The only parameter that can be changed in the 960 format is the baud rate.

1. Press the EXIT key. The following is displayed:

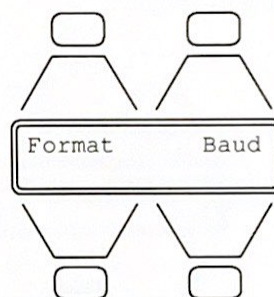


2. To change the baud rate, press the Baud soft key. The following is displayed:

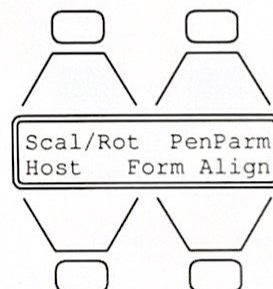


3. Pressing either bottom soft key causes the baud rate to change. Select the appropriate baud rate.

4. Press the EXIT key. The following is displayed:



5. Press the EXIT key. The following is displayed:

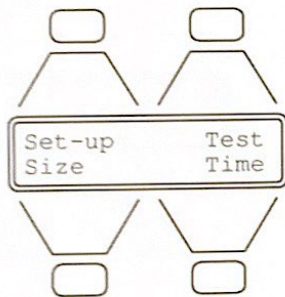


NOTE

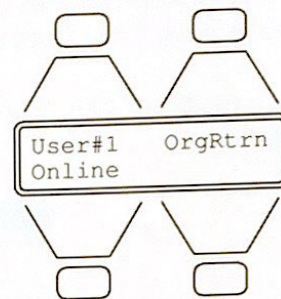
The saving changes message "Save as User 1?" only occurs if some parameter in the Set-up procedure has been changed.

CHANGING COMMUNICATIONS PARAMETERS

6. Press the EXIT key. If changes were made, proceed to Saving Set-up Changes procedure, (page 3-20). If changes were not made, the following is displayed:



7. Press the EXIT key. The following is displayed:

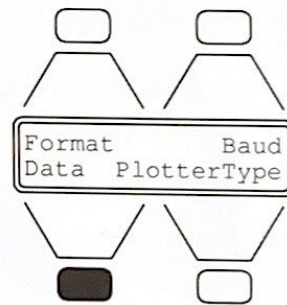
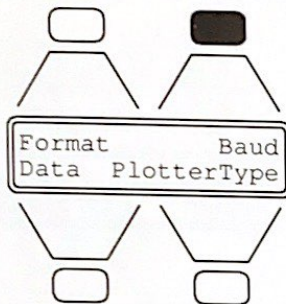


The plotter is now ready for operation. Proceed to Chapter 4.

CHANGING COMMUNICATIONS PARAMETERS

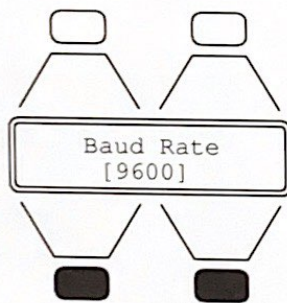
CPGL Format Changes

1. Press the EXIT key. The following is displayed:
4. Press the EXIT key. The following is displayed:



Baud Rate

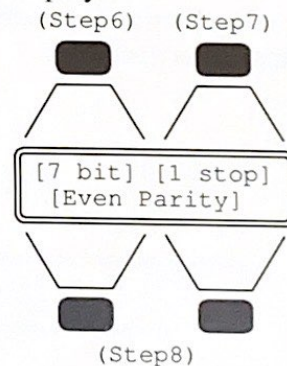
2. Press the Baud soft key. The following is displayed:



3. Pressing either bottom soft keys causes the baud rate to change. Select the appropriate baud rate.

Byte Length, Stop Bits, Parity

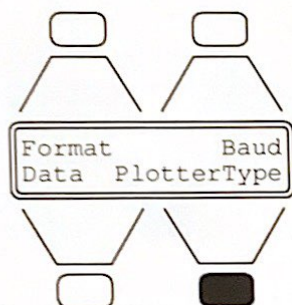
5. Press the Data soft key. The following is displayed:



6. Press the top left soft key to change the byte length.
7. Press the top right soft key to change the stop bits.

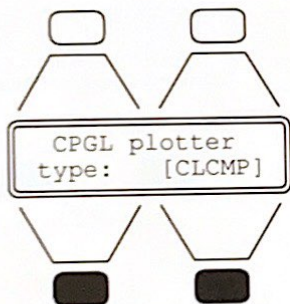
CHANGING COMMUNICATIONS PARAMETERS

8. Press either bottom soft key to change the parity.
9. After the three variables are selected, press the EXIT key. The following is displayed:



Plotter Type

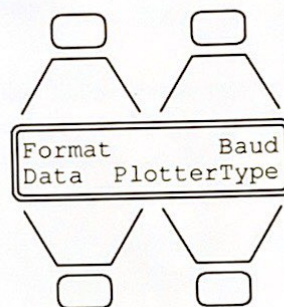
10. Press the Plotter Type soft key. The following is displayed:



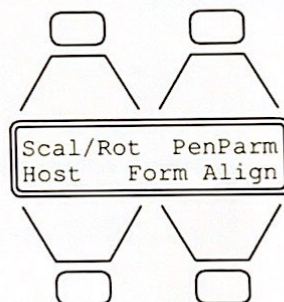
11. Pressing either bottom soft key causes the plotter type to change. Select the appropriate plotter type.

See Table 3-1, page 3-3 for listing of supported plotter types.

12. Press the EXIT key. The following is displayed:



13. Press the EXIT key. The following is displayed:

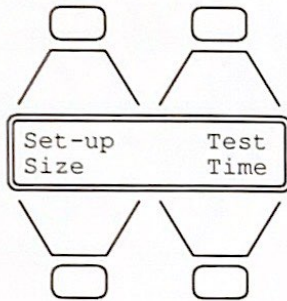


NOTE

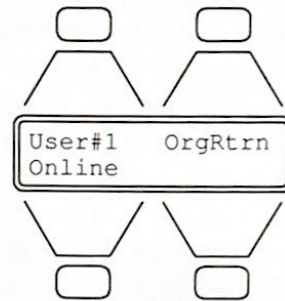
The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

CHANGING COMMUNICATIONS PARAMETERS

14. Press the EXIT key. If changes were made, proceed to Saving Set-up Changes procedure, (page 3-20). If changes were not made, the following is displayed:



15. Press the EXIT key. The following is displayed:



The plotter is not ready for operation. Proceed to Chapter 4.

SAVING SET-UP CHANGES

SAVING SET-UP CHANGES

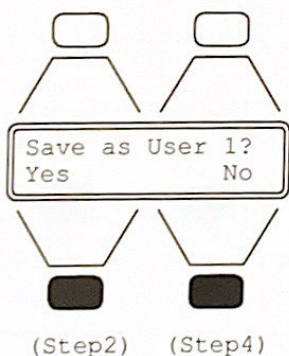
This function gives the user the option of permanently saving the changes just made, temporarily saving the changes, or discarding the changes. In addition, the changes can be assigned to any one of four users (1, 2, 3, or 4).

Prior to performing this procedure, it is recommended that the user read the entire procedure and Figure 3-2. Figure 3-2 is a summary of the procedure.

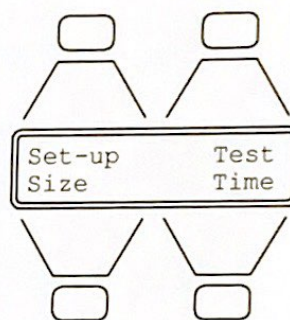
NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

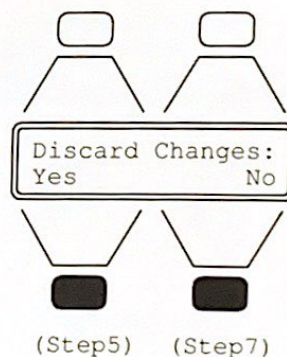
1. To assign a user number to the changes, use the numeric keys to enter user number 1, 2, 3, or 4.



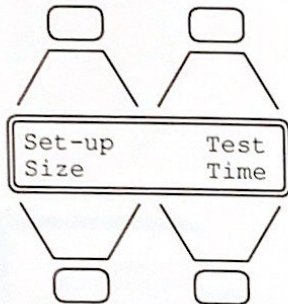
2. To permanently save the changes, press the Yes soft key. The following is displayed:



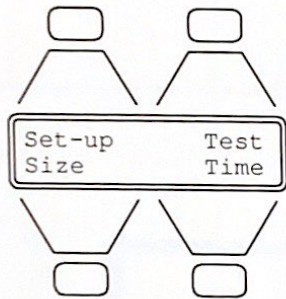
3. Proceed to step 9.
4. To temporarily save the changes or discard them, press the No soft key, the following is displayed:



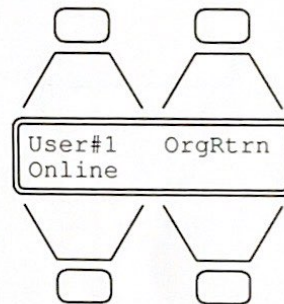
5. To discard the changes, press the Yes soft key. The following is displayed:



6. Proceed to step 9.
7. To temporarily save the changes, press the No soft key. The following is displayed:



8. Proceed to step 9.
9. Press the EXIT key. The following is displayed:



The plotter is now ready for operation. Proceed to Chapter 4.

SAVING SET-UP CHANGES

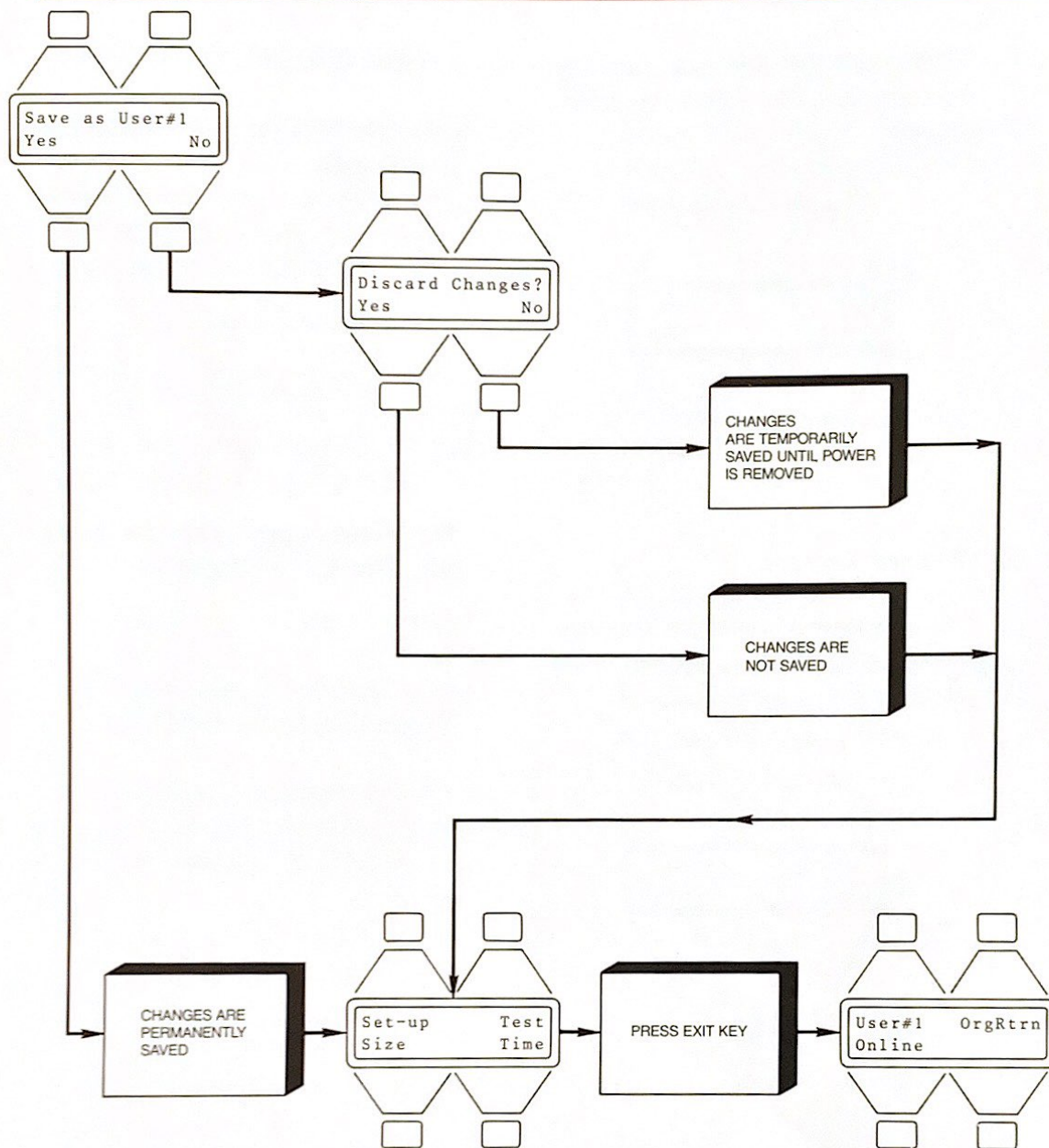
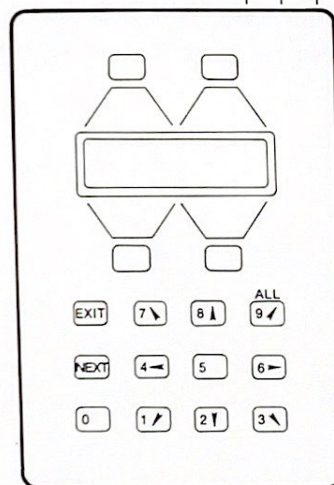


Figure 3-2. Save Procedure Summary

CHAPTER FOUR PLOTTER SET-UP AND CUT-SHEET OPERATIONS



CHAPTER 4

PLOTTER SET-UP AND CUT-SHEET OPERATIONS

INTRODUCTION

This chapter describes the use of the front panel, all basic plotter set-up operations, and the operation of the plotter for cut-sheet plotting. Artisan Plus 1026 roll-mode operations are described in Chapter 5. However, all operations in this chapter apply to the Artisan Plus 1026 in the cut-sheet plot mode.

The plotter has two main modes of operation:

- Online
- Manual

A brief tutorial is provided to familiarize the user with both of these modes. Detailed procedures are also provided for the use of the options available within each mode.

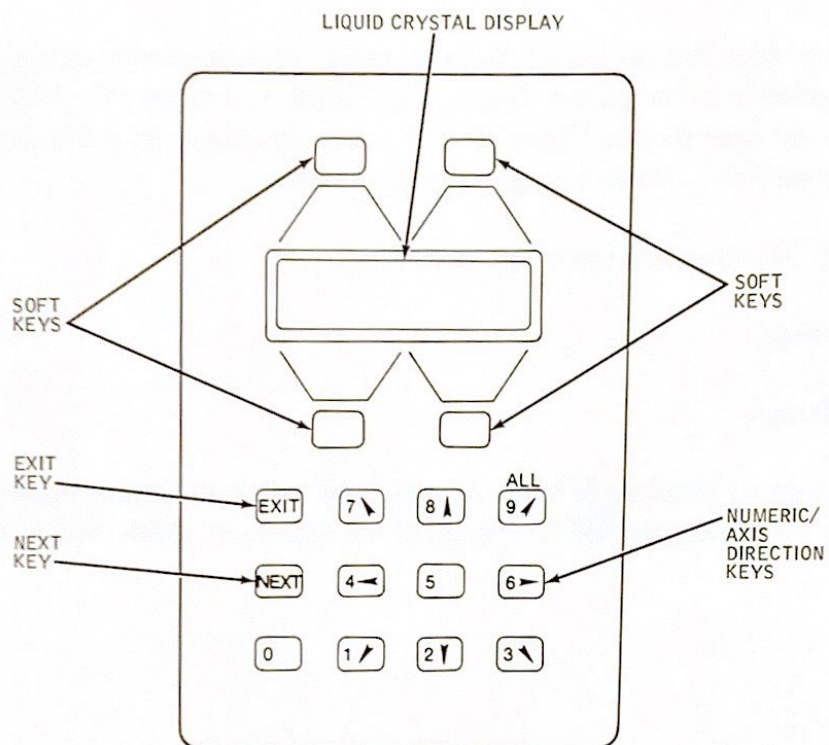
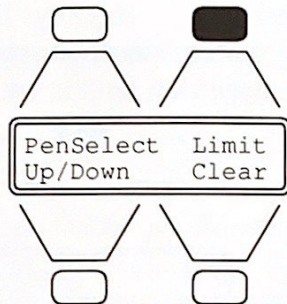


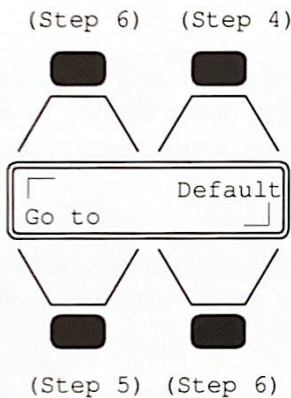
Figure 4-1. Front Panel

To use this feature, proceed as follows:

1. Display page 2 of the main menu.



2. Press the Limit soft key. The following is displayed:

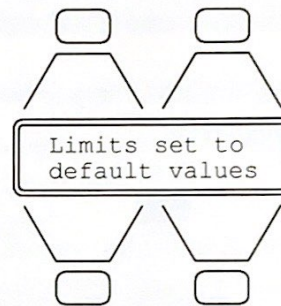


3. At this point, the following can be performed:

- Reset to default limits (step 4)
- View the existing limits (step 5)
- Define new limits (step 6)

4. **Reset to the Default Limits** - To use this feature proceed as follows:

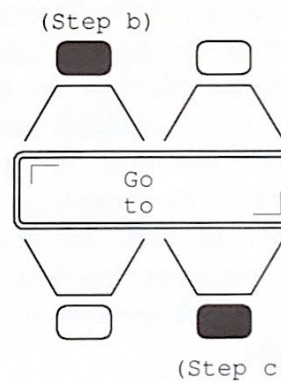
- a. Press the Default soft key. The following is momentarily displayed:



- b. The limits are now set to the default values.

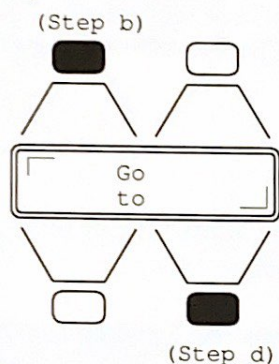
5. **View the Existing Limits** - To use this feature proceed as follows:

- a. Press the Go to soft key. The following is displayed:



SETTING PLOT LIMITS

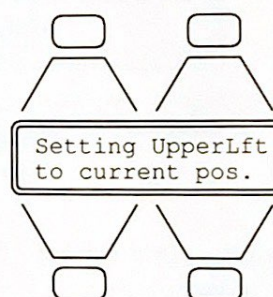
- b. Press the  soft key to view the upper left limit. The pen carriage is moved to the upper left limit.
- c. Press the  soft key to view the lower right limit. The pen carriage is moved to the lower right limit.
- d. Press the EXIT key. The following is displayed:



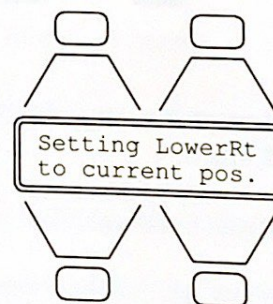
6. **Define New Limits** - This operation can be used to crop a drawing by setting the limits smaller than the plot image of the drawing and then plotting the drawing again. In the replotted drawing, the image outside of the defined limits is not drawn and thus, the drawing is cropped. The letter L appears to the right of the Plot Time display whenever the plotter has been ordered to plot outside the area of the current media.

To define new limits, proceed as follows:

- a. Using the numeric/axis direction keys, move the pen to the location of the desired upper left limit.
- b. Press the  soft key. The following is momentarily displayed while the upper left limit is set.



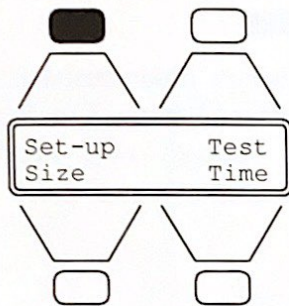
- c. Using the numeric/axis direction keys, move the pen to the location of the desired lower right limit.
- d. Press the  soft key. The following is momentarily displayed while the lower right limit is set.



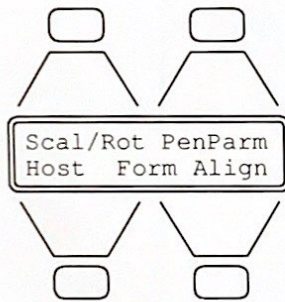
CHANGING SET-UP PARAMETERS

This feature has several suboptions that are used to change the basic operating parameters of the plotter. To use this feature proceed as follows:

1. Display page 3 of the main menu.



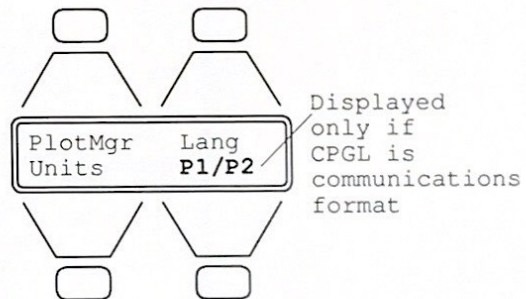
2. Press the Set-up soft key. The following is displayed:



3. From this menu, the following options can be selected:

- Scaling a plot (page 4-32)
- Changing plot orientation (page 4-34)
- Changing host communications parameters (Chapter 3)
- Changing pen parameters (page 4-36)
- Aligning forms (page 4-39)

4. Press the NEXT key. The following is displayed:



CHANGING SET-UP PARAMETERS

5. From this menu, the following options can be selected:

- Changing plotter units (page 4-43)
- Optimizing plot time (page 4-45)
- Changing plotter language (page 4-47)
- Setting P1/P2 points (page 4-49)

6. Press the NEXT key.

1023 and 1025

Page 1 of the Set-up menu is displayed. See Figure 4-4 for the set-up menu structure.

1026

The roll mode menu is displayed. Refer to Chapter 5 for the procedure to change roll mode set-up parameters.

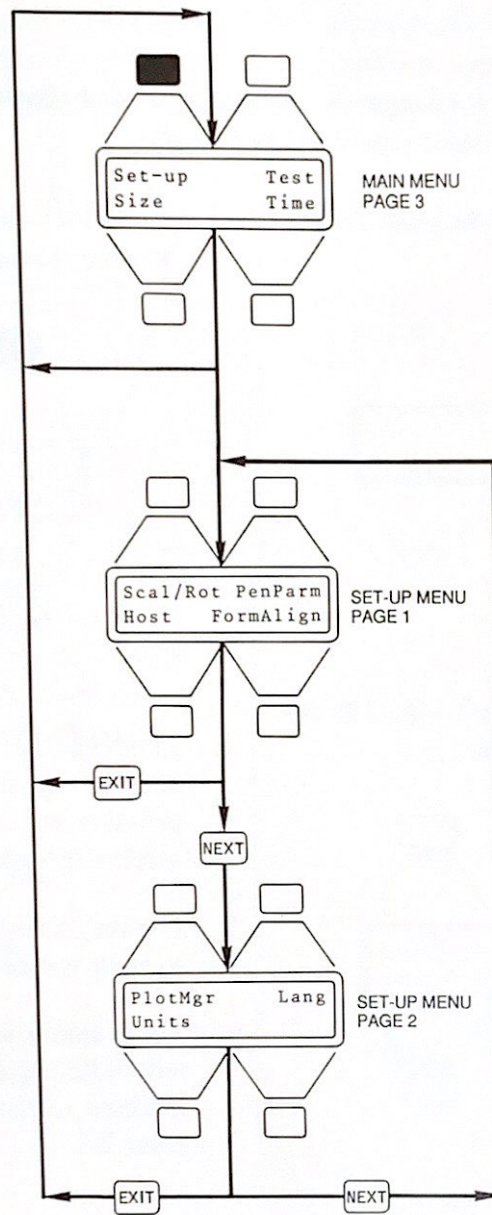


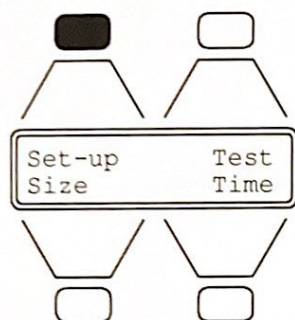
Figure 4-4. Set-up Menu Structure

SCALING A PLOT

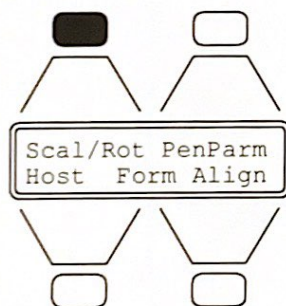
SCALING A PLOT

This feature is used to change the dimensions of a plot by changing the scale multiplier. To use this feature proceed as follows:

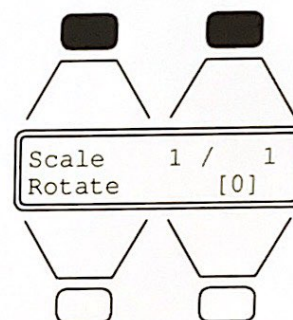
1. Display page 3 of the main menu.



2. Press the Set-up soft key. The following is displayed:

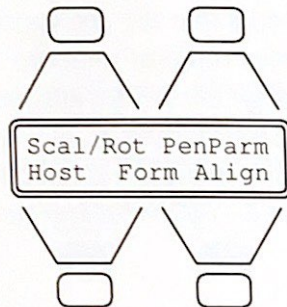


3. Press the Scal/Rot soft key. The following is displayed:



4. Pressing the upper left soft key selects the numerator field and pressing the upper right soft key selects the denominator field.
5. Use the numeric/axis direction keys to enter values for the fields.
6. For example, to plot a drawing one-half of its original size, enter 1/2. To increase a drawing to twice its size, enter 2/1.

7. After the appropriate scale multiplier is entered, press the EXIT key. The following is displayed:
8. Press the EXIT key. If changes were made, proceed to the Saving Set-up Changes procedure, (page 4-53).



NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

CHANGING PLOT ORIENTATION

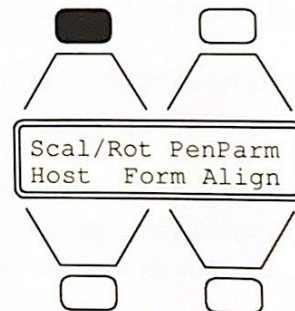
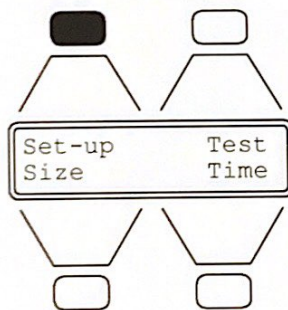
This feature is used to rotationally reorient plots. The plot orientation feature allows the user to rotate the plot in 90 degree increments. For each orientation, there is a different default starting point (the point on the media that the pen carriage is over when the sizing sequence is finished). For 0 degrees (no plot rotation) the default starting point is in the lower right corner. For 90 degrees, the default starting point is on the upper right corner. For 180 degrees the default starting point is in the upper left corner. For 270 degrees the default starting point is in the lower left corner. After each media sizing sequence, the pen carriage is placed over the default starting point implied by the plot orientation setting.

4

The plot orientation for each user is saved so each user may have a different plot orientation. The plot orientation/rotation and associated default point of origin must be kept in mind when using the return to point of origin feature of the Artisan Plus plotter.

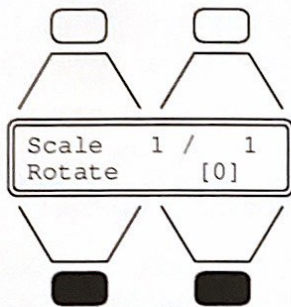
To use this feature, proceed as follows:

1. Display page 3 of the main menu.
2. Press the Set-up soft key. The following is displayed:



CHANGING PLOT ORIENTATION

3. Press the Scal/Rot soft key. The following is displayed:

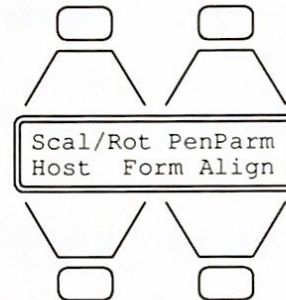


4. Pressing the lower left soft key selects plot rotation in descending order ([0], [270], [180], and [90]) and pressing the lower right soft key selects plot rotation in ascending order ([0], [90], [180], [270]).

NOTE

The media and/or pen carriage immediately moves to the new starting point as the plot rotation value is selected.

5. After the appropriate plot orientation is selected, press the EXIT key. The following is displayed:



NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

6. Press the EXIT key. If changes were made, proceed to the Saving Set-up Changes procedure, (page 4-53).

NOTE

If different users have different plot rotation values saved in set-up, selecting a new user causes the media and/or pen carriage to move to that user's starting point.

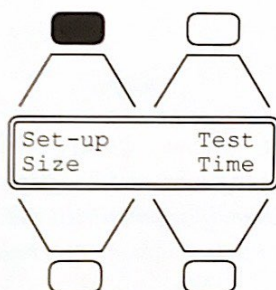
CHANGING PEN PARAMETERS

CHANGING PEN PARAMETERS

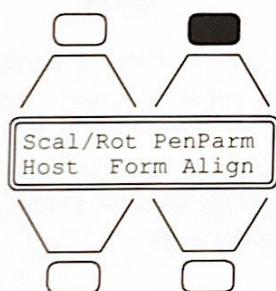
This feature is used to change the pen speed and pen force for liquid ball, plastic tip and liquid ink pens. The default values are satisfactory for most plotting applications. However, operating conditions and special applications may require changing the pen parameters.

To change the pen parameters, proceed as follows:

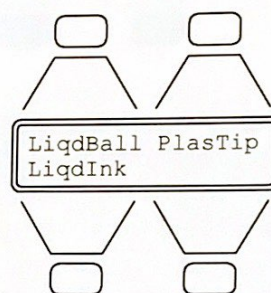
1. Display page 3 of the main menu.



2. Press the Set-up soft key. The following is displayed:



3. Press the Pen Parm soft key. The following is displayed:



NOTE

Entering a value of zero, a pen speed greater than 42 inches, or a pen force greater than 15 is rejected, and the following error message appears "Entered Value Out of Range."

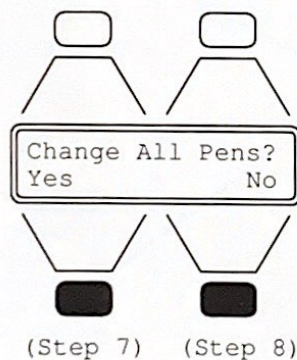
4. Using the appropriate soft key, select the pen type for which the parameters are to be changed. Table 4-1 shows the default values and limits for each pen type.

NOTE

Each pen type has recommended maximums for pen force and speed. Values entered that exceed these maximums cause the following error message appears "Warning - Beyond pen range"

If the excessive values are used, the pen or media may be damaged.

5. Figure 4-5 is a general display for the pen parameters. Using the appropriate soft key and numeric/pen movement keys, enter the pen parameter values.
6. To set the parameters the same for all pens of the same type, press the "ALL/9" key. The following is displayed:



7. Pressing the **Yes soft key** causes the Type n field in Figure 4-5 to display "ALL." The values displayed can now be saved for all pens of the same type.
8. Pressing the **No soft key** causes the operation to return to the display shown in Figure 4-5.
9. Press the EXIT key to select a different type of pen. Repeat steps 4 through 8 as necessary.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

10. If changes were made to the pen parameters, press the EXIT key three (3) times and proceed to the Saving Set-up Changes procedure, (page 4-53).

CHANGING PEN PARAMETERS

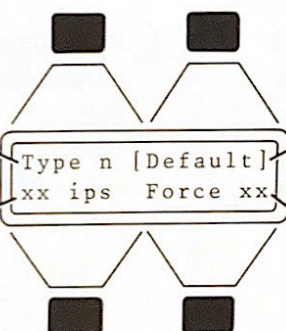
Table 4-1. PEN SPEED/FORCE

Pen Type	Pen Speed at 45 Degrees		Pen Force		
	Default	Max *	Default	Min	Max *
Plastic Tip WPP, WFP	6 in/s 15 cm/s	10 in/s 25 cm/s	03	01	05
Liquid Ball WLB	42 in/s 107 cm/s	42 in/s 107 cm/s	10	01	15
Liquid Ink WL, WT 7L, 7T	8 in/s 20 cm/s	10 in/s 25 cm/s	02	01	05

in/s = inches per second
cm/s = centimeters per second
* = recommended maximums

LB = Liquid ball
PT = Plastic tip
LI = Liquid ink
n = Pen number

Pen speed =
cm/s or in/s



Toggle between default or
user selected parameter
when upper right soft key is
pressed.

Pen force
1 = lowest
15 = highest
Use numeric/axis
direction keys to enter
pen force value

Figure 4-5. Pen Parameter Display

ALIGNING FORMS

This feature allows the precise alignment of the plotter X and Y axes to the reference lines on gridded or custom printed media and compensates for the expansion or contraction of the media due to changes in humidity. The forms alignment compensation is limited to plus or minus five degrees from the uncompensated X and Y axes of the plotter.

A sighting device called a reticle is used to precisely locate the alignment points after the media is loaded. A reticle may be ordered from any CalComp Sales and Support office listed in Appendix D.

1. This procedure requires locating three points of a right triangle on the media. If X and Y gridded media is used, the alignment points of the right triangle are along the X and Y grid lines. If custom printed media is being used, the three alignment points of the right triangle must be marked on the media before the media is loaded. In either case, these alignment points should be as far apart as possible for maximum alignment accuracy.

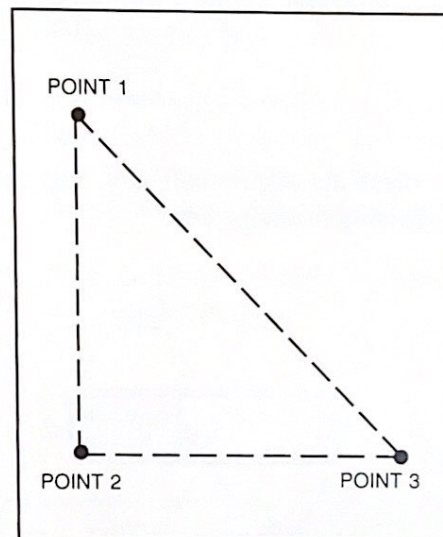


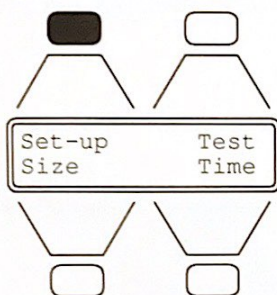
Figure 4-6. Forms Alignment Orientation, Viewed from Front of Plotter

ALIGNING FORMS

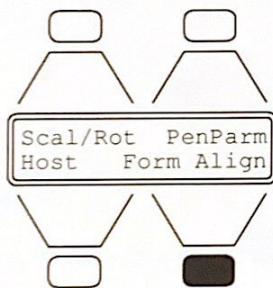
NOTE

The resulting alignment from this procedure is unique to the media loaded. The factors for this procedure are not saved for subsequent media.

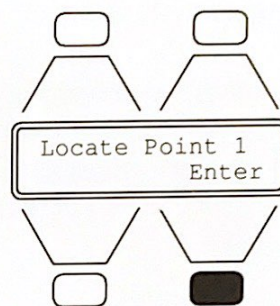
2. Display page 3 of the main menu.



3. Press the Set-up soft key. The following is displayed:



4. Press the Form Align soft key. The following is displayed:



5. Using the numeric/axis direction keys, move the pen carriage to where it is convenient to load the reticle. The cover must be raised before using the reticle.
6. Load the reticle into the pen carriage as shown in Figure 4-7.

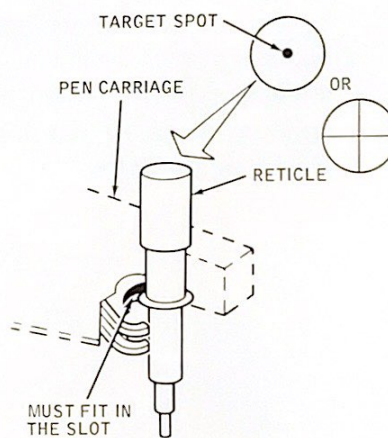
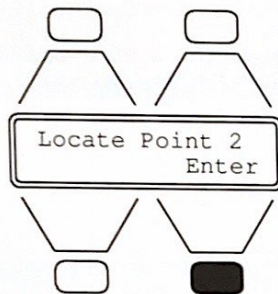


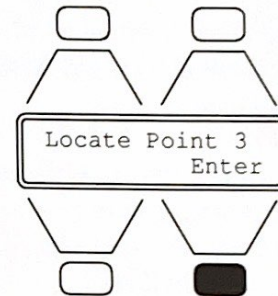
Figure 4-7. Reticle

7. Using the numeric/axis direction keys, move the reticle over the approximate location of the first point of the right triangle.
8. Sight through the reticle. Using the numeric/axis direction keys, position the target spot precisely over the first point of the right triangle.
9. Press the Enter soft key. The following is displayed:

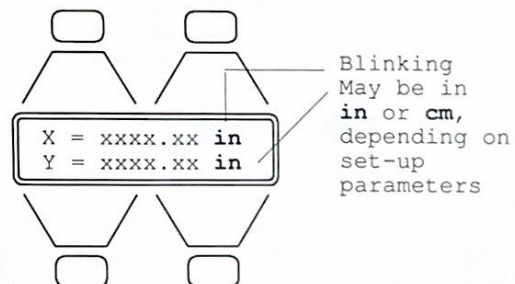


10. Using the numeric/axis direction keys, move the reticle over the approximate location of the second point of the right triangle.
11. Sight through the reticle. Using the numeric/axis direction keys, position the target spot precisely over the second point of the right triangle.

12. Press the Enter soft key. The following is displayed:



13. Using the numeric/axis direction keys, move the reticle over the approximate location of the third point of the right triangle.
14. Sight through the reticle. Using the numeric/axis direction keys, position the cross hairs precisely over the third point of the right triangle.
15. Press the Enter soft key. The following is displayed:



ALIGNING FORMS

This display may be used to enter correction factors for the X and Y lengths. This is only necessary when the lengths of the right triangle are known and differ from the displayed values.

To enter correction values, use the two bottom soft keys to select the Y field and the two top soft keys to select the X field.

Use the numeric/axis direction keys to enter the new values.

The plot image is now aligned to the x and y axes of the right triangle.

16. Remove the reticle.

17. Press the EXIT key three times, the following is displayed:

User#1 OrgRtrn
Online

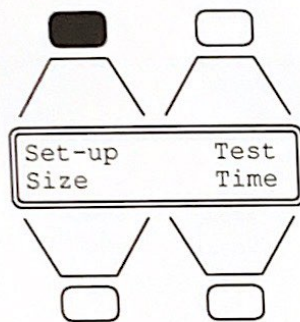
18. The plotter is now ready to draw the plot aligned to the media.

CHANGING PLOTTER UNITS

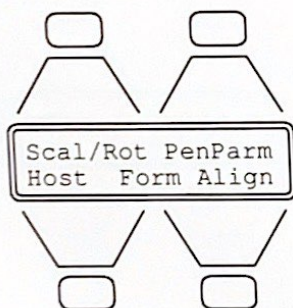
This feature allows selecting either inches (English) or centimeters (metric) as the unit of measure to be displayed. This feature affects the displayed units only and has no effect on the drawing of the plot in inches or centimeters. The default is inches.

To use this feature proceed as follows:

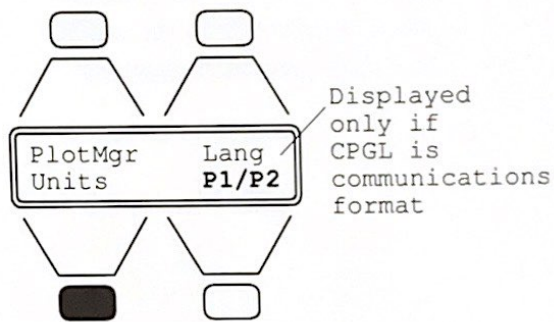
1. Display page 3 of the main menu.



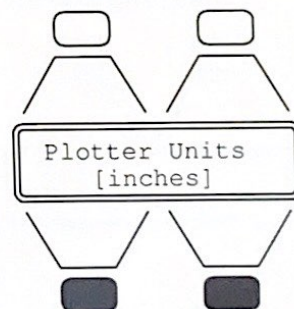
2. Press the Set-up soft key. The following is displayed:



3. Press the NEXT key. The following is displayed:



4. Press the Units soft key. The following is displayed:



5. Pressing either lower soft key causes the display to change between inches and centimeters. Display the desired units.

CHANGING PLOTTER UNITS

6. Press the EXIT key twice.
7. If changes were made, proceed to the Saving Set-up Changes procedure, (page 4-53).

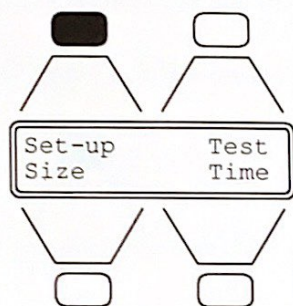
NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

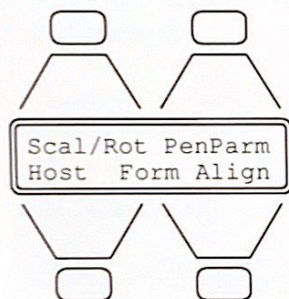
OPTIMIZING PLOT TIME

This feature (Plot Manager) can be used to minimize plot time by optimizing pen movement and pen exchanges when drawing a plot. The default setting is with the Plot Manager enabled. To use this feature proceed as follows:

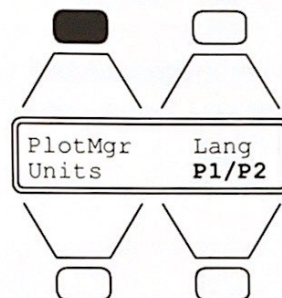
1. Display page 3 of the main menu.



2. Press the Set-up soft key. The following is displayed:



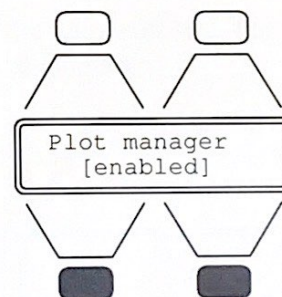
3. Press the NEXT key. The following is displayed:



Displayed only if CPGL is communications format

4

4. Press the Plot Mgr soft key. The following is displayed:



5. Pressing either bottom soft key causes the display to alternate between enabled and disabled.

OPTIMIZING PLOT TIME

6. Select the desired mode.
7. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

4

8. If changes were made, proceed to the Saving Set-up Changes procedure, (page 4-53).

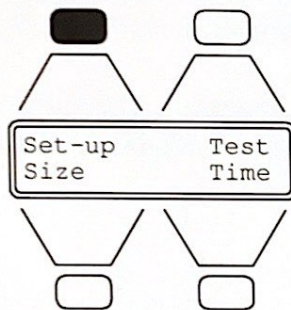
CHANGING DISPLAY LANGUAGE

This feature is used to change the display language to one of the following:

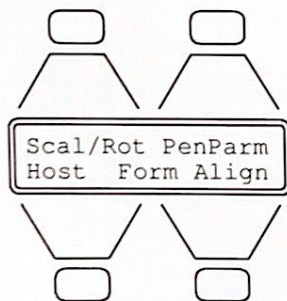
- English
- German
- Spanish
- Italian
- Katakana characters
- French

The default is English. To use this feature proceed as follows:

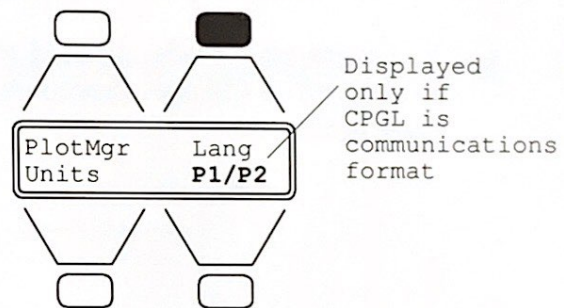
1. Display page 3 of the main menu.



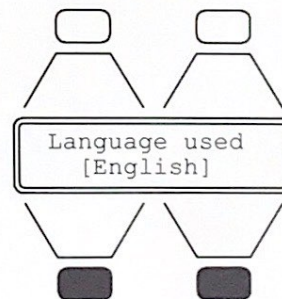
2. Press the Set-up soft key. The following is displayed:



3. Press the NEXT key. The following is displayed:



4. Press the Lang soft key. The following is displayed:



CHANGING DISPLAY LANGUAGE

5. Pressing either lower soft key allows the available languages to be displayed. Select the desired language.
6. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

7. If changes were made, proceed to Saving Set-up Changes procedure, (page 4-53).

SETTING P1/P2 POINTS FOR CPGL FORMAT

This feature is active only if CPGL has been selected as the communications format (Chapter 3). Using this feature allows the following:

- Set new P1/P2 points
- Reset to the default P1/P2 points
- Find the existing P1/P2 points

The P1/P2 default positions are located 15 millimeters inside the default plot limits in both the X- and Y-axes, as shown in Figure 4-8..

If the plot orientation is changed, the P1/P2 points are set to their default positions, which are rotated with the X- and Y-axes.

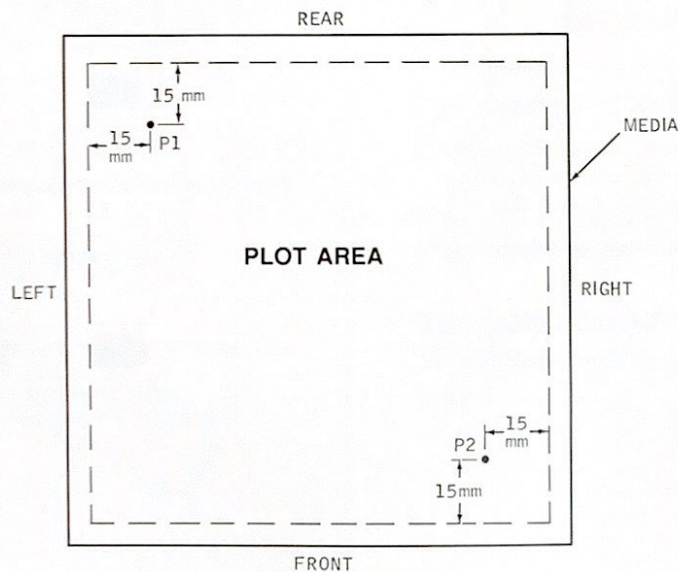
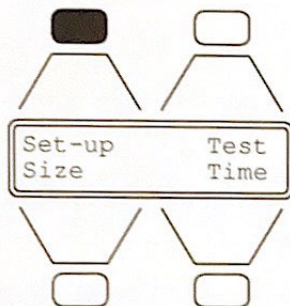


Figure 4-8. CPGL P1/P2 Default Points (Rotate = 0)

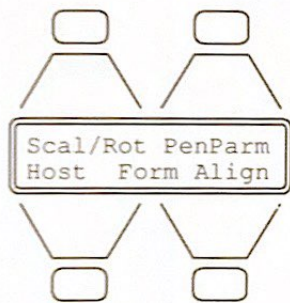
SETTING P1/P2 POINTS FOR CPGL FORMAT

This procedure requires the use of a sighting device called a reticle (Figure 4-7). A reticle can be ordered from any CalComp Sales and Support Office listed in Appendix D. To use this feature proceed as follows:

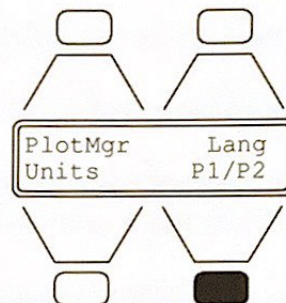
1. Display page 3 of the main menu.



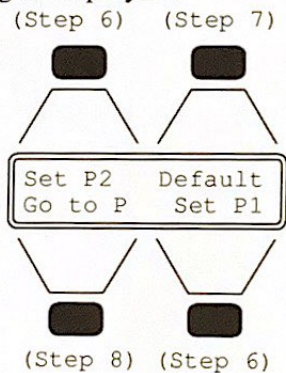
2. Press the Set-up soft key. The following is displayed:



3. Press the NEXT key. The following is displayed:



4. Press the P1/P2 soft key. The following is displayed:



FRONT PANEL

The front panel (Figure 4-1) contains the following elements:

- Liquid Crystal Display (LCD)
- Four soft keys
- EXIT key
- NEXT key
- Numeric/axis direction keys

LIQUID CRYSTAL DISPLAY (LCD)

The LCD displays the following:

- Menu options
- Messages
- Prompts

SOFT KEYS

The soft keys above and below the LCD are used to select the corresponding menu options. The combination of the soft keys and menu options form a versatile menu-driven system.

NEXT KEY

The NEXT key is used to display the next page of a multipage menu.

EXIT KEY

The EXIT key is generally used to exit a menu or a mode of operation.

NUMERIC/AXIS DIRECTION KEYS

These keys are multifunction keys and are used as follows:

- To enter numeric values when prompted by the LCD
- To select a pen during the pen selection sequence
- To position the pen carriage or drum. The arrows indicate the direction the pen moves with respect to the media.

OPERATING CONVENTIONS

The following are general operating conventions.

- The numeric/axis direction keys can be used in the Manual mode to position the pen carriage when numeric entry is not required.
- The pen is raised from the media after 5 seconds of non-use. After 10 additional seconds, it is returned to the turret to prevent the pen tip from drying out.
- The pinch rollers can be raised during any operation except set-up and the operation is terminated. However, the plotter starts again with a sizing media sequence after the pinch rollers are lowered.
- When the cover is raised while the plotter is in a plot mode, the plotter goes into the view mode. In the view mode the media is moved almost all the way forward and the pen is capped.
- A blinking value in a display indicates the value can be changed by using the numeric keys.
- When prompted for a numeric value, if the value entered is beyond specified limits, the value is not accepted and a value out-of-range message is displayed.
- Characters enclosed in brackets indicate that characters are part of a list. The remainder of the list can be shown by pressing the soft key closest to the character(s).
- The plotter can store the set-up parameters for up to four users. It is recommended that a record of user numbers and associated parameters be maintained. This allows the user quick access to different set-ups for different application packages.
- When a numeric/axis direction key is pressed to move the pen carriage, the pen moves slowly at first. If the key is held longer, the pen moves faster.

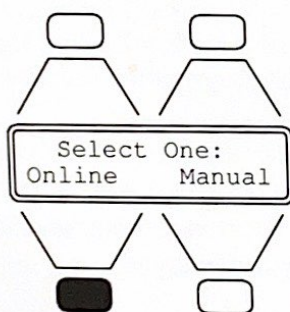
Once the user is familiar with the operation of the plotter, the menus and options become intuitive and the following procedures are needed only for reference.

TUTORIAL

This tutorial is intended to familiarize the user with the operation of the plotter. As stated earlier, the plotter has two main modes of operation: Online and Manual. The Artisan Plus 1026, since it uses both cut-sheet and roll media, has several additional plot modes. Refer to Chapter 5 for details. Cut-sheet media loading and plotting on the Artisan Plus 1026 is identical to that described for the Artisan Plus 1025.

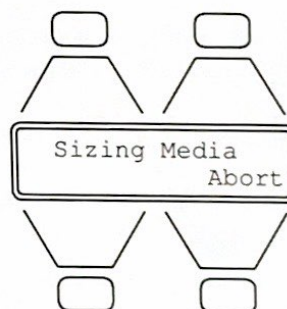
The Online mode is normally used to plot data from the host. This is the mode in which the plotter actually plots the data. However, for purposes of demonstration, it is not necessary to connect and communicate with the host. Proceed as follows:

1. Ensure that the media and pens have been loaded in accordance with Chapter 1 and that the following is displayed:



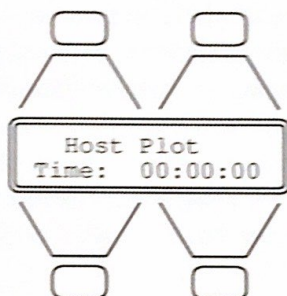
Online Mode

2. Press the Online soft key. The following is displayed as the media is sized.



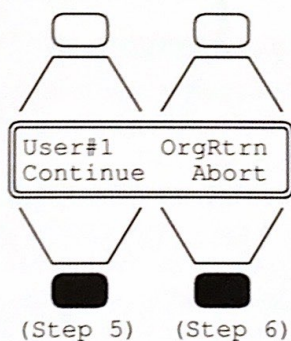
The Artisan Plus 1026, because it uses both sheet and roll media, also displays the plot mode, e.g., Roll mode, during the sizing operation. Refer to Chapter 5 for details.

3. After the media is sized, the pen carriage obtains a pen from pen turret and the following is displayed:



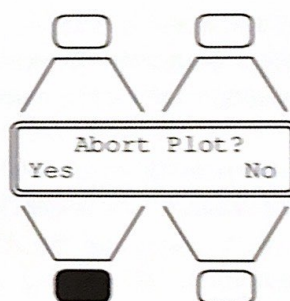
If the host had sent plot data, the plotter begins plotting and displays increments (in seconds) to indicate the time the plotter was busy drawing the plot.

4. To halt a plot in process, press the EXIT key. The following is displayed:



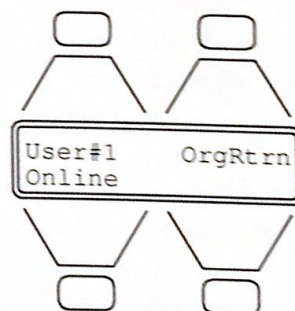
If an actual plot were being performed, this action would interrupt the plot and give control to the Manual mode.

5. Press the Continue soft key. The plotter resumes plotting with the same pen at the point it was plotting when the EXIT key was pressed.
6. Press the Abort soft key. The following is displayed:



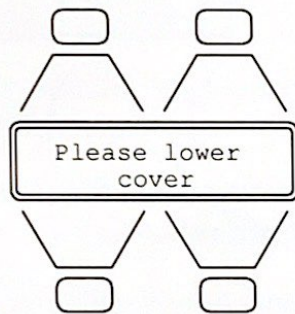
The No soft key provides a means of returning to the plot if the Abort soft key was pressed in error.

7. Press the Yes soft key. If an actual plot were being performed, it would be aborted at this point. The following is displayed:



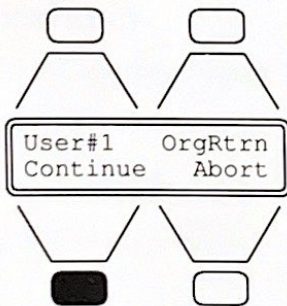
8. If the cover is raised while the plotter is in a plot mode (Online, Replot, Confidence Plot, IMD, etc.), the plotter goes into the view mode.

In the view mode, the media is moved almost all the way forward, the pen is capped and the following is displayed:



At this point the media can be removed and a new plot sequence started.

9. To continue the plot in process, lower the cover. The following is displayed:

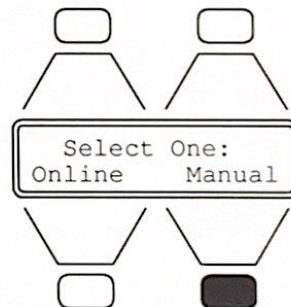


10. Press the Continue soft key. The plotter resumes plotting with the correct pen at the point it was plotting when the cover was lifted.

The remainder of this procedure provides an overview of the Manual mode and a brief description of each of the options.

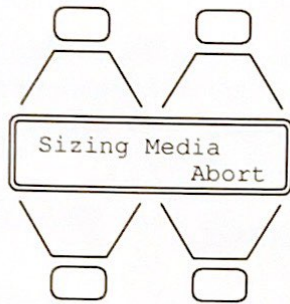
Manual Mode

11. Ensure that the media and pen(s) have been loaded in accordance with Chapter 1 and that the following is displayed.

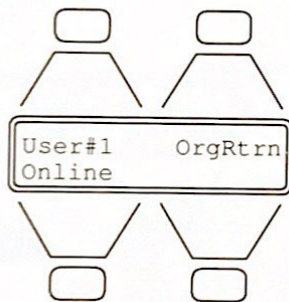


TUTORIAL

12. Press the Manual soft key. The following is displayed as the media is sized.



13. The main menu consists of three pages. After the media is sized, page 1 of the main menu is displayed.

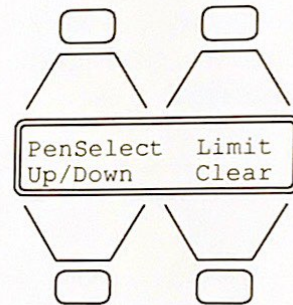


User #1 - Allows selection of set-up parameters for up to four users

OrgRtrn - Returns the pen carriage to the point where the plot started when the plotter went online

Online - Starts a new plot from the host

14. Press the NEXT key. Page 2 of the main menu is displayed.



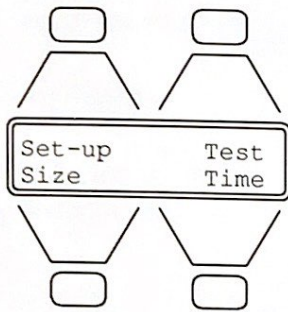
Pen Select - Allows selecting a specific pen

Limit - Allows setting the plot limits to user-defined values or to default values

Up/Down - Allows raising or lowering pen to/from media

Clear - Allows clearing the plot data buffer

15. Press the NEXT key. Page 3 of the main menu is displayed:



Set-up - Sets the various parameters for up to four users.

Test - Runs the confidence plot (Chapter 1) and various diagnostics (Chapter 7).

Size - Shows the dimensions of a plot.

Time - Shows the total time of a plot.

16. Press the NEXT key.

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The display returns to page 1 of the main menu.

NOTE

If the EXIT key is pressed while page 2 or 3 of the main menu is displayed, control is returned to page 1.

Figure 4-2 shows the main menu structure.

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The Page Advance/Frame Advance menu is displayed. Refer to Chapter 5 for the function of these soft keys.

17. Press the NEXT key. The display returns to page 1 of the main menu.

NOTE

If the EXIT key is pressed while page 2, 3 or 4 of the main menu is displayed, control is returned to page 1.

Figure 4-2 shows the main menu structure.

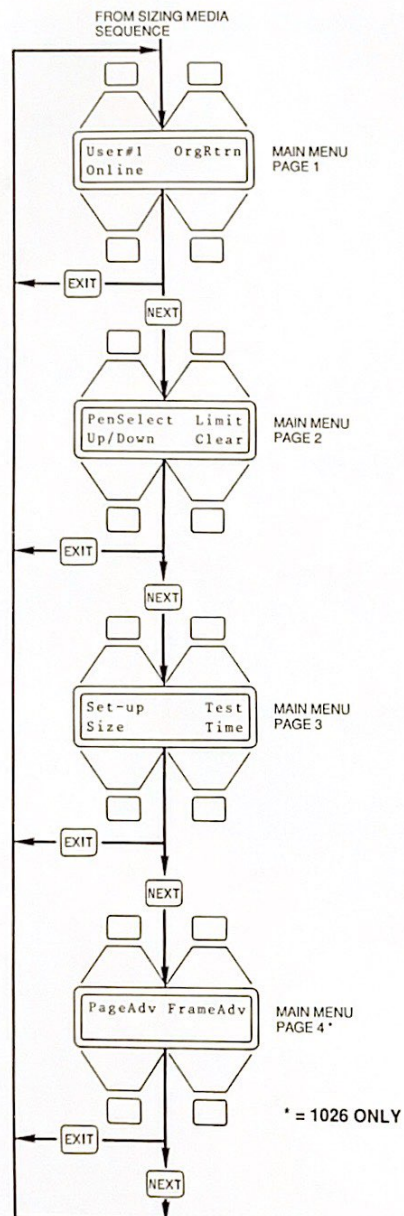


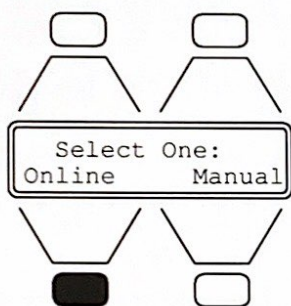
Figure 4-2. Main Menu Structure

PLACING THE PLOTTER ONLINE

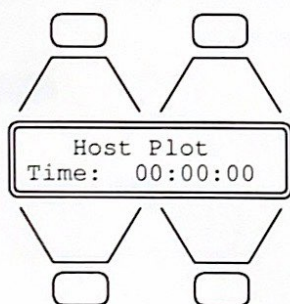
Online operations can be selected in two ways: 1) Prior to sizing the media, and 2) From page one of the main menu. Both methods are described below.

Prior to Sizing Media

1. After the media is loaded, the following is displayed:



2. Pressing the Online soft key causes the media to be sized. After the media is sized, the following is displayed:



3. The plotter is now online waiting for plot data from the host. If the fol-

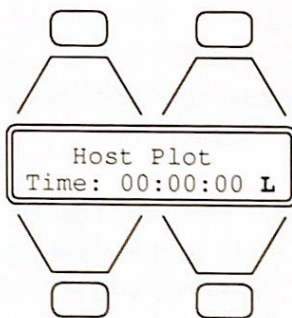
lowing has been performed properly, the host should start to send plot data and the plotter should start to draw a plot.

- Pens loaded properly (Chapter 1)
 - Plotter connected to host (Chapter 2)
 - Plotter communications parameters set (Chapter 3)
 - Host applications software loaded and operating correctly
4. As the plotter draws the plot, the time displayed is incremented each second the plotter is busy.

NOTE

Plot time display is only incremented when the plotter is actively engaged in producing the plot. Thus, if the host is not transferring data at a rate that keeps the plotter busy, the displayed plot time is less than the elapsed plot time.

PLACING THE PLOTTER ONLINE



L is displayed only when current plot limits are exceeded, e.g., plotter has been asked to plot beyond limits

NOTE

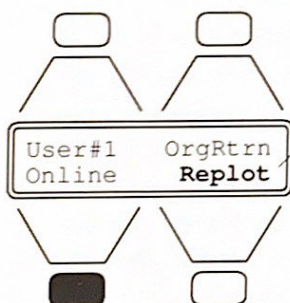
With the Artisan Plus 1026 in Long Plot mode, the out of limits L can always be expected to be present due to the nature of the long plot operation.

At the end of the plot, the display indicates the total time the plotter was busy.

From the Main Menu

To place the plotter online from the main menu, proceed as follows:

1. Display page 1 of the main menu.



Displayed only if memory expansion is installed

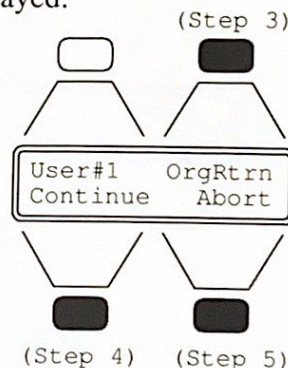
2. Press the Online soft key.

3. Continue at step 3 of the previous procedure.

Interrupting a Plot

1. There are two ways to interrupt a plot:
 - Raise the cover.
 - Press the EXIT key.
- a. Raise the cover. The plotter is now in the view mode, media forward and pen capped. After viewing the plot, lower the cover and proceed to step 2.
- b. Press the EXIT key. The pen and media remain where they were when the EXIT key was pressed.

The time display on the LCD is not incremented or displayed while the plot is interrupted. The following is displayed:



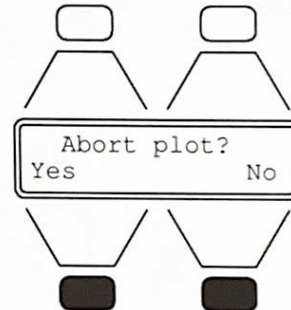
2. At this point there are three options available:

- Move the pen to the point of origin (step 3)
- Continue the plot (step 4)
- Abort the plot (step 5)

3. **To return to the point of origin**, press the OrgRtn soft key. The pen carriage returns to the origin point of the plot. This is the point where the plotter started online. This option is useful if the pen carriage has been moved using the numeric/axis direction keys and it is desired to return the pen carriage to the beginning of the plot.

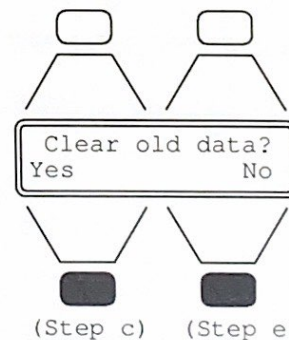
4. **To continue the plot**, press the Continue soft key. The plot continues from the point where it was interrupted. The host plot time is incremented.

5. **To abort the plot**, press the Abort soft key. The following is displayed:



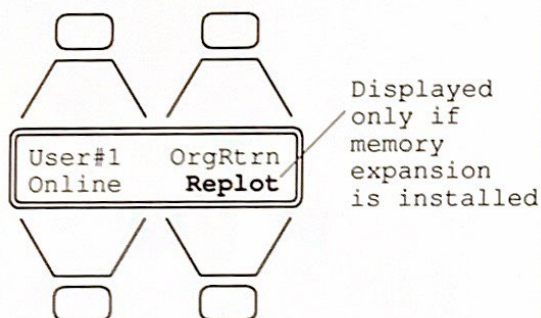
6. At this point, the user is given a chance to not abort the plot by pressing the No soft key. If the No soft key is pressed, return to step 2. If the Yes soft key is pressed, the following occurs.

- a. If plot data is in the data buffer, the following is displayed:

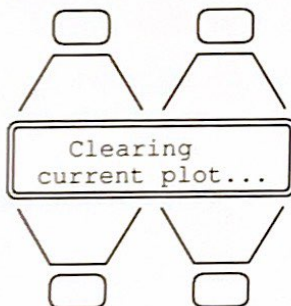


PLACING THE PLOTTER ONLINE

- b. If plot data is not in the data buffer, control is returned to page 1 of the main menu and the following is displayed:

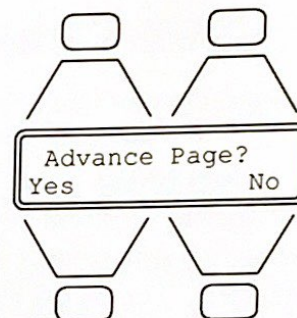


- c. If the Yes soft key is pressed, the following is displayed as the plot data is cleared. Control is then returned to page 1 of the main menu shown in step b.



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- d. If the plotter is in Batch or Batch/Long mode, after the clear display, the plotter displays:



If the YES soft key is pressed, the plotter goes into the page advance sequence. Control is then returned to page 1 of the main menu shown in step b.

- e. If the No soft key is pressed, control is returned to page 1 of the main menu shown in step b.

MANUAL MODE

The remainder of this chapter describes the Manual mode and its various options. A procedure usually starts from the one of the pages of the main menu. (Refer to Figure 4-2.) If you are not familiar with the main menu section, please review the tutorial. The following options can be run from the Manual mode:

- | | |
|---|---|
| <ul style="list-style-type: none"> • User number • Return to point of origin • Set new point of origin • Pen select • Pen up/down • Clearing plotter memory • Size • Time • Limits • Clear • Set-up <ul style="list-style-type: none"> — Scale — Plot orientation — Pen parameters — Form alignment — Change units — Plot manager | <ul style="list-style-type: none"> — Change language — CPGL P1/P2 — Saving changes • Replot • Viewing a plot • Test <ul style="list-style-type: none"> — Confidence plot — IMD — Percent of buffer used — Revision level — Hardware scale factor setting • 1026 Roll Mode - see Chapter 5 <ul style="list-style-type: none"> — Plot mode — Cut line — EOF clock — Stabilization time — Pen grouping — Page advance — Frame advance |
|---|---|

ASSIGNING A USER NUMBER

ASSIGNING A USER NUMBER

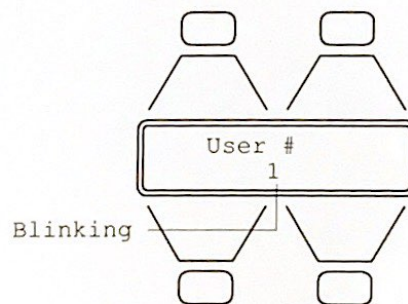
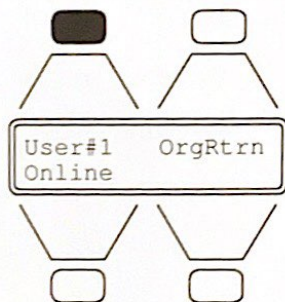
This procedure should be used only if the set-up parameters are changed and assigned to new users as described on page 4-53. The user number option is used to recall the set-up parameters (described on page 4-29) for up to four different users. It is highly recommended that a record of each user's parameters be maintained. For your convenience, charts have been provided in Appendix C. To change user number, proceed as follows.

NOTE

4

There is no need to change user numbers if only the set-up parameters for one user are saved. These parameters may be user-defined or the factory default parameters.

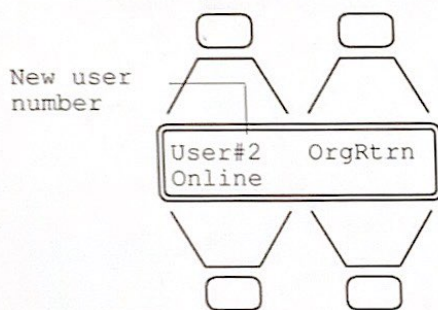
1. Display page 1 of the main menu.
2. Press the User #1 soft key. The following is displayed:



3. Using numeric/axis direction keys, enter the appropriate user number (1 through 4).

4. Press the EXIT key. The following is displayed:

5. The plotter now operates under the set-up parameters associated with the user number displayed.

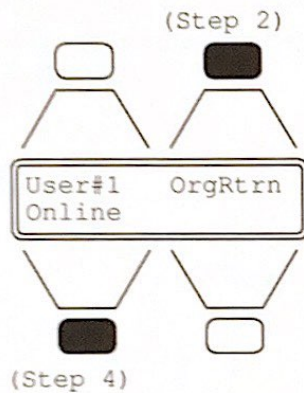


RETURNING TO POINT OF ORIGIN

RETURNING TO POINT OF ORIGIN

This feature returns the pen to the location where the plot started.

1. Display page 1 of the main menu.



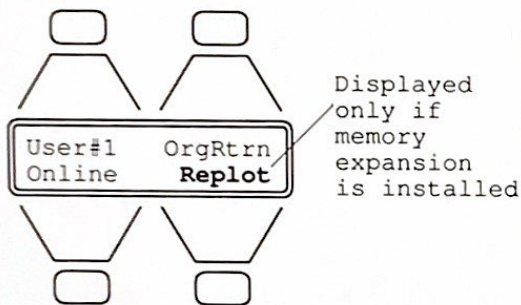
2. Press the OrgRtrn soft key.
3. The pen is lifted from the media and the pen moves to the point of origin. The pen remains raised.
4. Press the Online soft key to start a new plot at the same point of origin.

SETTING NEW POINT OF ORIGIN

The point of origin is defined as the point on the media where the pen carriage is positioned when the plotter is placed online. This set new point of origin technique allows starting a plot at a new point of origin on the same media (already in the plotter) or on new media. The new point of origin can only be established from the Manual mode.

New Point of Origin on New Media

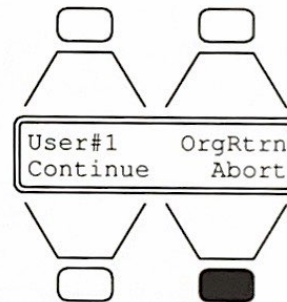
1. After the media is loaded, press the Manual soft key. After the media is sized, the following is displayed:



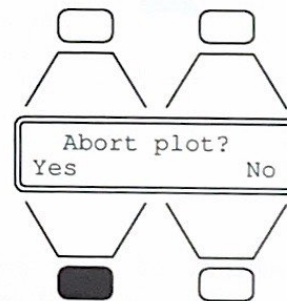
2. Using the numeric/axis direction keys, move the pen carriage to the new point of origin.
3. Press the Online soft key. The plotter goes online and starts the plot at the new point of origin.

New Point of Origin on Same Media

1. If the plotter is online, press the EXIT key. The following is displayed:

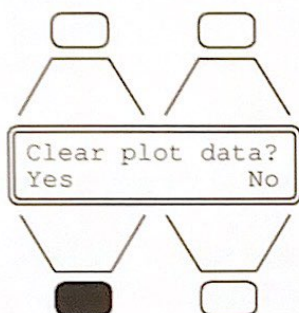


2. Press the Abort soft key. The following is displayed:

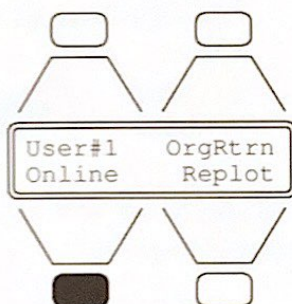


SETTING NEW POINT OF ORIGIN

3. Press the Yes soft key. If plot data is in the buffer, the following is displayed:



4. Pressing the Yes soft key clears the plotter for the next plot. The plotter then displays:

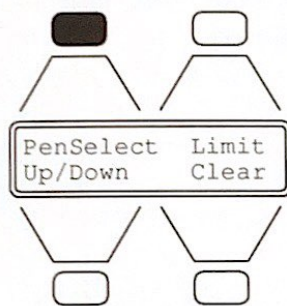


5. Pressing the No soft key causes the same display as step 4 except the plot data buffer is not cleared.
6. Using the numeric/axis direction keys, move the pen carriage to the new point of origin.
7. Press the Online soft key. The plotter goes online and starts the plot at the new point of origin.

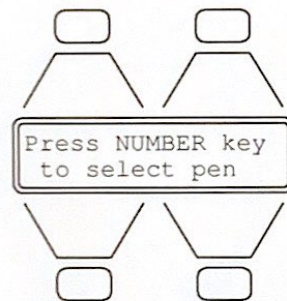
SELECTING A PEN

This feature is used to select a desired pen from the pen turret. Any of eight pens may be selected or the pen can be returned to the turret. To select a pen, proceed as follows:

1. Display page 2 of the main menu.

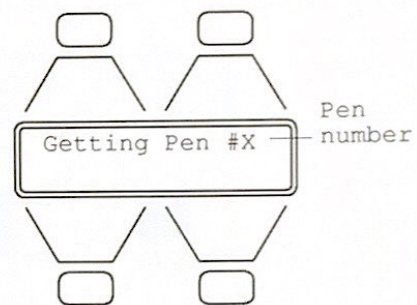


2. Press the Pen Select soft key. The following is displayed:

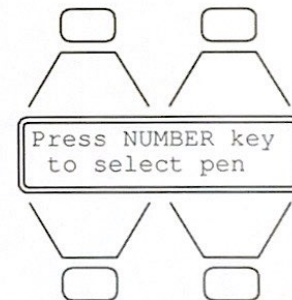


3. Using the numeric/axis direction keys, enter a pen select number (1 through 8) or 0 to return the pen to the turret.

4. The following is momentarily displayed:



5. The pen carriage obtains the selected pen from the pen turret and returns to its previous location. The following is displayed:



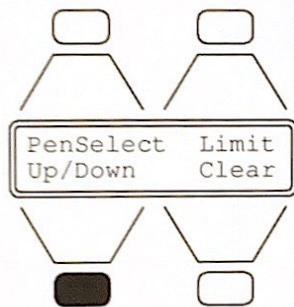
6. Press the EXIT key to display page 2 of the main menu. This is the same display as illustrated in number 1.

RAISING AND LOWERING THE PEN

RAISING AND LOWERING THE PEN

This feature is used to raise and lower the pen from or to the media. To use this feature proceed as follows:

1. Display page 2 of the main menu.

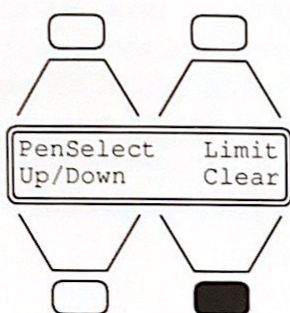


2. Press the Up/Down soft key. Each time the Up/Down soft key is pressed, the pen is raised or lowered.

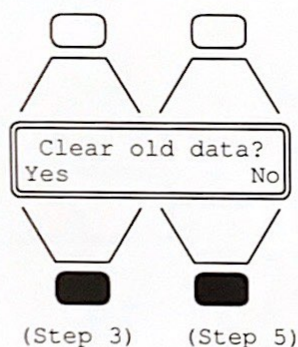
CLEARING THE PLOTTER MEMORY

This feature is used to clear the current plot data in the plot buffers. The current plot data is the plot information sent from the host computer. To use this feature proceed as follows:

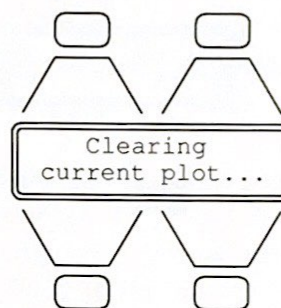
1. Display page 2 of the main menu.



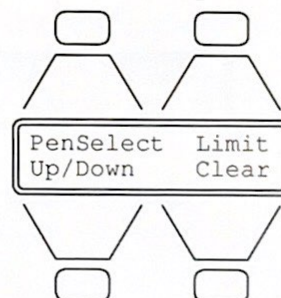
2. Press the Clear soft key. The following is displayed:



3. Pressing the Yes soft key causes the following to be momentarily displayed:



4. Upon clearing the plot data, the following is displayed:



5. Pressing the No soft key causes page 2 of the main menu to appear.

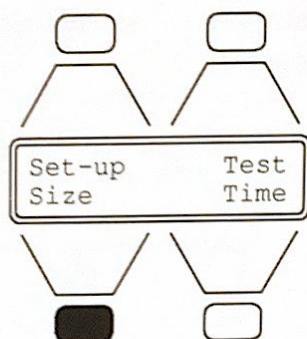
The plot data buffer is not cleared.

DISPLAYING PLOT SIZE

DISPLAYING PLOT SIZE

This feature displays the dimensions of a plot in progress or the dimensions of a completed plot. To use this feature proceed as follows:

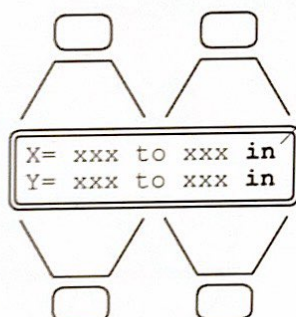
1. Display page 3 of the main menu.



NOTE

If a plot in progress is interrupted to show the size, the dimensions shown are of the plot in progress, not the completed plot. All dimensions displayed are always rounded up to a whole inch or centimeter.

2. Press the Size soft key. The following is displayed:

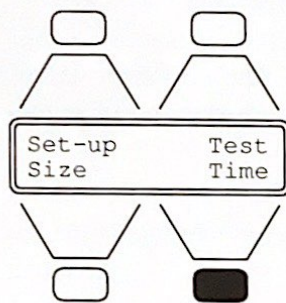


May be in **in** or **cm**, depending on set-up parameters

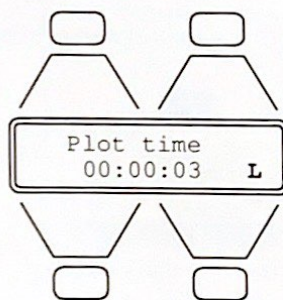
DISPLAYING PLOT TIME

This feature displays plot time for a plot in progress or a completed plot. The plot time is the time the plotter is actively engaged producing the plot. To use this feature proceed as follows:

1. Display page 3 of the main menu.



2. Press the Time soft key. The following is displayed:



L is displayed 3. only when current plot limits are exceeded, e.g., plotter has been asked to plot beyond limits

NOTES

With the Artisan Plus 1026 in Long plot mode, the out of limits L can always be expected to be present due to the nature of the long plot operation.

Plot time display is only incremented when the plotter is actively engaged in producing the plot. Thus, if the host is not transferring data at a rate that keeps the plotter busy, the displayed plot time is less than the elapsed plot time.

3. The time displayed is in hours, minutes, and seconds.

SETTING PLOT LIMITS

SETTING PLOT LIMITS

This feature allows the following:

- View the existing limits
- Reset to the default limits
- Define new limits (can be used to crop a drawing)

The plot limits define the area of the plot image. The cut-sheet default limits are shown in Figure 4-3. The roll media default limits are shown in Chapter 5.

4

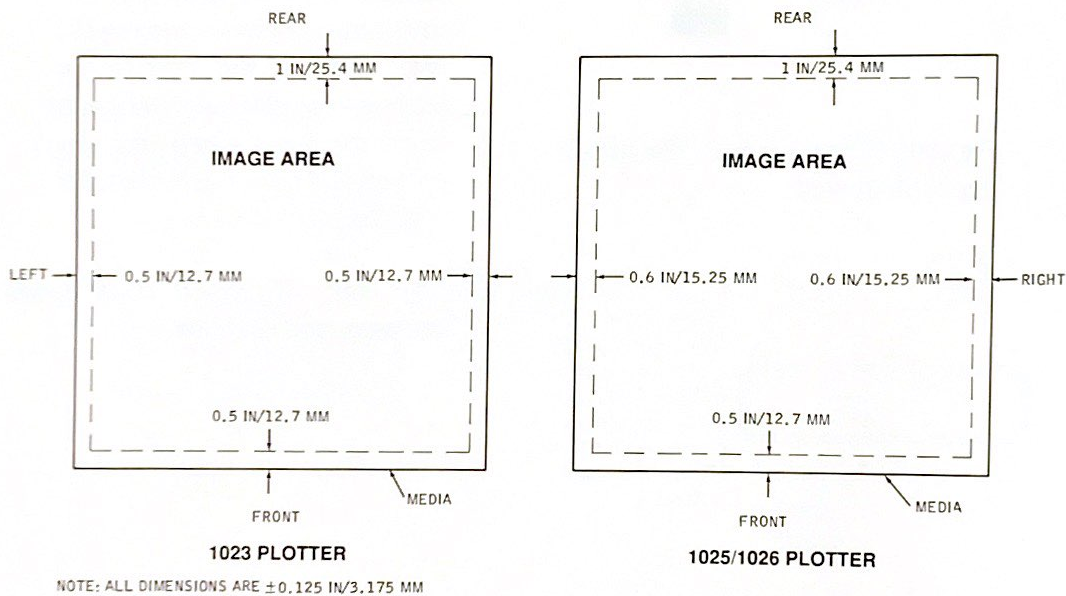


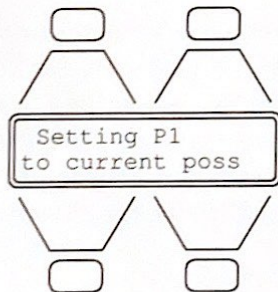
Figure 4-3. Cut-sheet Plot Image Default Limits

5. At this point the following can be performed:

- Set new P1/P2 points (step 6)
- Reset to default P1/P2 points (step 7)
- View the existing P1/P2 points (step 8)

6. **Set new P1/P2 points** - To use this option, proceed as follows:

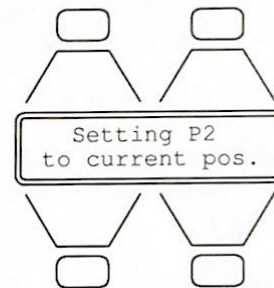
- a. Load the reticle as described in the Forms Alignment procedure, page 4-39.
- b. Using the numeric/axis direction keys, move the reticle to the new P1 point and target the P1 point.
- c. Press the Set P1 soft key. The following is momentarily displayed:



d. This sets the new P1 values. The display returns to step 4.

e. Using the numeric/axis direction keys, move the reticle to the new P2 point and target the P2 point.

f. Press the Set P2 soft key. The following is displayed:



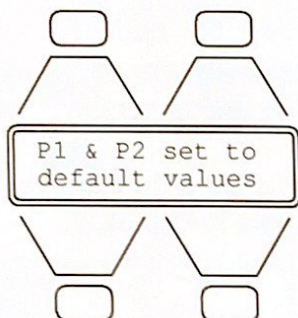
g. This sets the new P2 value. The display returns to step 4.

h. Press the EXIT key twice to return to the main menu.

7. **Reset to the default P1/P2 points** - To use this option, proceed as follows.

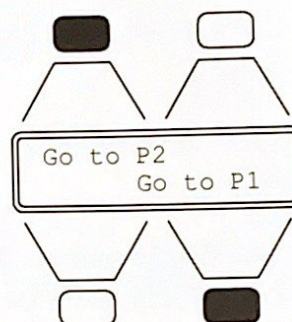
SETTING P1/P2 POINTS FOR CPGL FORMAT

- a. Press the Default soft key. The following is momentarily displayed:



- b. P1 & P2 have been set to the default P1/P2 values and the display returns to step 4.
- c. Press the EXIT key twice to return to the main menu.
8. **Viewing Existing P1/P2 Points -**
To use this feature, proceed as follows:

- a. Press the Go to P soft key. The following is displayed:



- b. To view the P2 point, press the Go to P2 soft key. The pen carriage moves to the P2 point.
- c. To view the P1 point, press the Go to P1 soft key. The pen carriage moves to the P1 point.
- d. Press the EXIT key three times to return to the main menu.

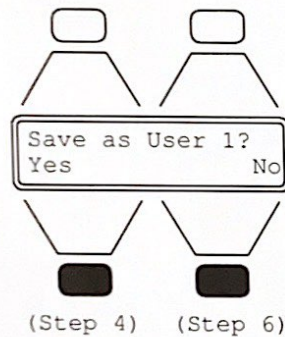
SAVING SET-UP CHANGES

Prior to performing this procedure, it is recommended that the user read the entire procedure and Figure 4-9. Figure 4-9 is a summary of the procedure.

NOTE

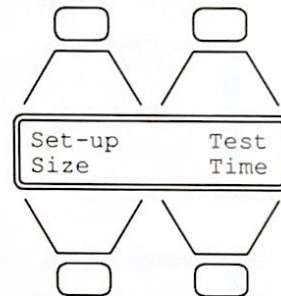
The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

1. Press the EXIT key until the following is displayed:

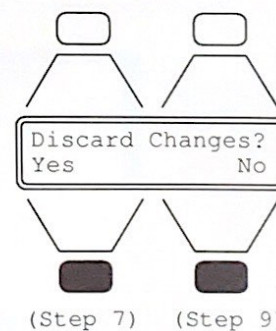


2. This function gives the user the option of permanently saving the changes just made, temporarily saving the changes, or discarding them. In addition, the changes can be assigned to any one of four users (1, 2, 3, or 4).
3. To assign a user number to the changes, use the numeric keys to enter the user number 1, 2, 3, or 4.

4. **To permanently save the changes,** press the Yes soft key. The following is displayed:

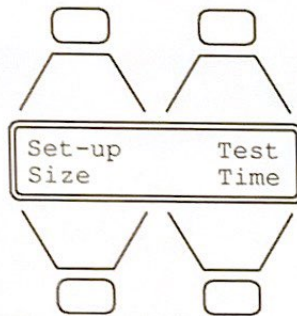


5. Proceed to step 10.
6. **To temporarily save the changes or discard the changes,** press the No soft key. The following is displayed:

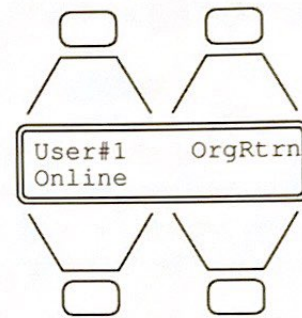


SAVING SET-UP CHANGES

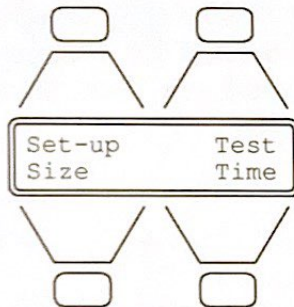
7. If the **Yes** soft key is pressed, the changes are not saved and the following is displayed:



10. Press the EXIT key. The following is displayed:



8. Proceed to step 10.
9. If the **No** soft key is pressed, the changes are temporarily saved until power is removed for immediate use. The following is displayed:



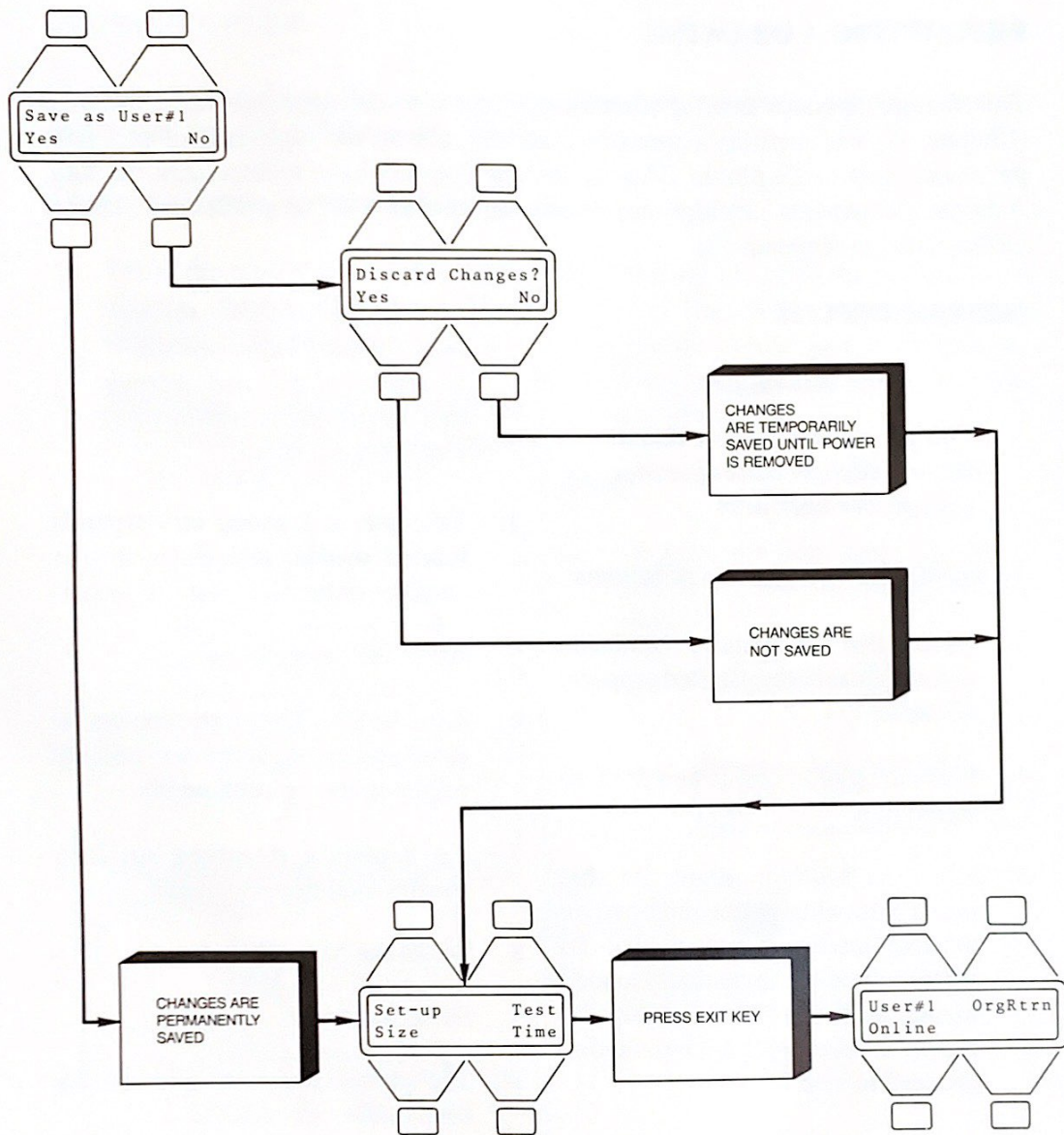


Figure 4-9. Save Procedure Summary

REPLOTTING A DRAWING

This feature operates only if a memory expansion cartridge has been installed (Chapter 1). The memory expansion cartridge allows the replotting of plot data previously sent to the plotter. That is, the host does not have to retransmit the data. A memory expansion cartridge may be ordered from the CalComp Sales and Support Office listed in Appendix D.

1023/1025 REPLOT

NOTE

*This procedure is abbreviated.
It is intended for a user familiar
with plotter operation.*

To use this feature, proceed as follows:

1. Ensure that the memory expansion cartridge has been installed properly (Chapter 1).
2. Place the plotter online and draw an initial plot.
3. EXIT to Manual mode. At this point, a drawing can be replotted on existing media or new media. To replot a drawing on currently loaded media, proceed to the next step. To replot a drawing on new media, proceed to step 7.

NOTE

*If the data in the data buffer
cannot be replotted because of*

*a data buffer overflow, the mes-
sage "Replot buffer overflow"
is displayed for two seconds
and the display returns to page
1 of the main menu.*

4. **To replot a drawing on currently loaded media**, reposition the pen carriage to the new point of origin.
5. Abort the current plot.
6. Press Replot. The plotter replots the drawing starting at the new point of origin on the existing media.
7. **To replot a drawing on new media**, load the new media.
8. Select the Manual mode.
9. Select Replot.
10. The plotter draws the plot on the new media.

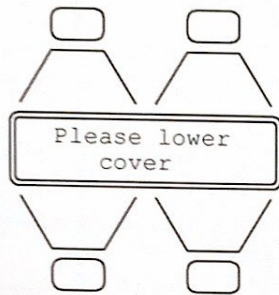
For 1026 replot operation, see Chapter 5.

VIEWING A PLOT

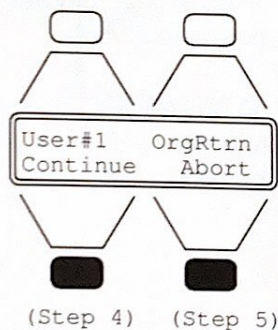
The view feature allows the user to see the entire plot progress; the media is moved all the way forward and the pen is capped.

To use this feature, proceed as follows:

1. While the plotter is in a plot mode (Online, Replot, Confidence Plot, IMD, etc.), lift the cover.
2. The media is moved almost all the way forward and the pen is capped. The following is displayed:



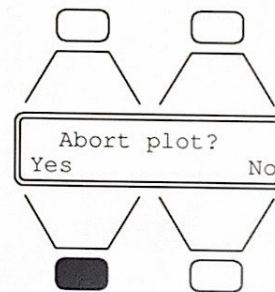
3. After lowering the cover the following is displayed:



4. To continue, press the Continue soft key. The plotter resumes plotting with the correct pen, starting at the point being plotted when the cover was lifted.

Abort

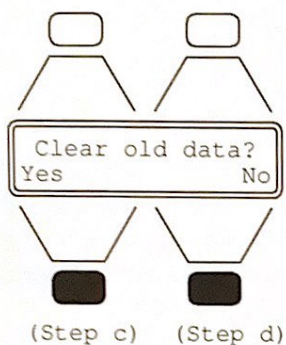
5. To abort the plot, press the Abort soft key. The following is displayed:



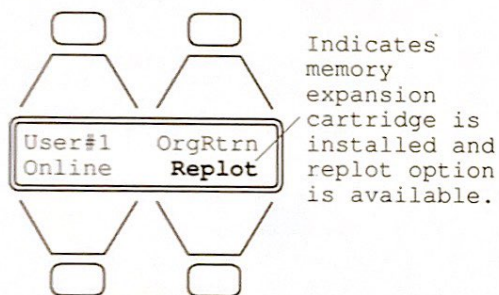
6. Press the Yes soft key.

VIEWING A PLOT

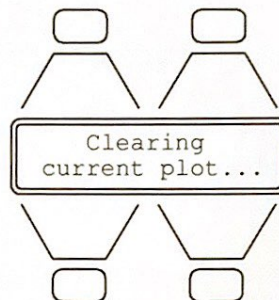
- a. If plot data is in the data buffer, the following is displayed:



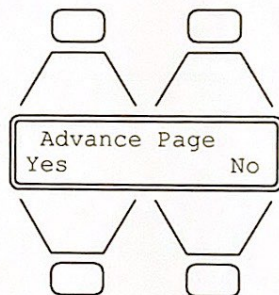
- b. If the data buffer is empty, control is returned to page 1 of the main menu and the following is displayed:



- c. If the **Yes** soft key is pressed, the following is displayed as the plot data is cleared.



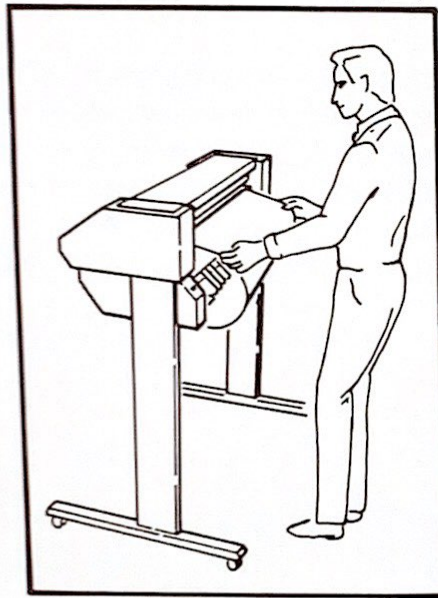
After the data has been cleared, the following is displayed:



After either the YES or NO softkey has been pressed, control is then returned to page 1 of the main menu shown in step 6b.

- d. If the **No** soft key is pressed control is returned to page 1 of the main menu shown above.

CHAPTER FIVE ROLL MEDIA OPERATIONS



CHAPTER 5

ROLL MEDIA OPERATIONS

INTRODUCTION

The Artisan Plus 1026 Plotter performs roll mode plotting in addition to all of its cut-sheet plotting capabilities. The Artisan Plus cut-sheet plotting capabilities are the same as the Artisan Plus 1025. These cut-sheet features, along with all the basic set-up features of the Artisan Plus plotters, are detailed in Chapter 4. This chapter describes only the roll feed/roll mode capabilities of the 1026 and those features of the 1026 that pertain to roll media plotting.

ROLL MEDIA PLOTTING

The 1026 Artisan Plus plotter is capable of producing plots in several different plot modes. These plot modes are Cut Sheet, Single plot, Batch plot, Long plot, and for those 1026 Artisan Plus plotters with an optional memory expansion cartridge, Batch/Long plots. Cut-sheet plotting with the 1026 is identical in operation to the 1025. However, the other plot modes are unique to roll media plotting and are described in the following paragraphs along with the features associated with roll media plotting.

SINGLE PLOT

SINGLE PLOT

Single plot describes the plotting mode which produces individual plots from roll media. Each plot must be cut off before the start of the next plot; the front take-up core is not used. In effect, single plots are fed from the roll of media.

Single plots are made on a section of roll media that can be up to 48 inches long. The 48-inch section of media is termed a page. A page is a section of media intended for a complete plot. The plotter loads and stabilizes a 48-inch page of media. This page of media is reserved for the incoming plot. However, the full 48 inches of media need not be used. After the plot is finished, during the page advance cycle for the next section of media, the media is advanced until the space between plots is positioned over the cutter track. A pair of cutlines can be automatically drawn at the end of the plot. These lines are 1/4 inch apart and are centered at the cutter track. A built-in bidirectional cutter is furnished for cutting off these plots as each plot is finished. A typical layout of single plots is shown in Figure 5-1.

Media is advanced in the Single plot mode using the Page Advance soft key. This soft key function causes a 48-inch section of media to be advanced and stabilized. Pages are not aligned to one another and each page is a complete single plot.

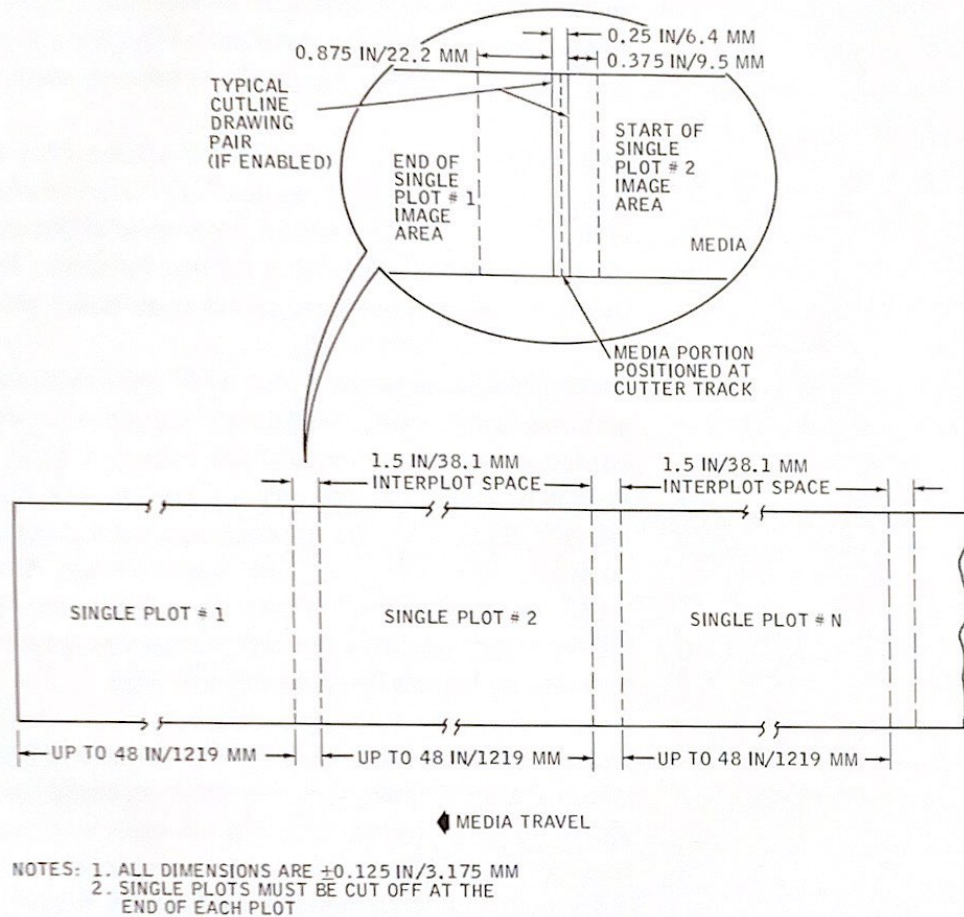


Figure 5-1. Multiple Single Plot Image and Media Dimensions

BATCH PLOT

Batch plots are multiple plots, each one up to 48 inches long, on roll media. Between Batch plots, the media is advanced and stabilized. Finished plots are automatically rolled onto the front take-up assembly.

The cutline drawing feature of the Artisan Plus 1026 can be enabled for Batch plots. This feature automatically draws a pair of lines 1/4 inch apart at the end of the plot to aid in separating roll media plots. These lines are centered at the space between Batch plots.

Batch plots are made on a section of roll media that is up to 48 inches long. The 48-inch section of media is termed a page. As indicated previously, a page is a section of media intended for a complete plot. Pages are not aligned to one another and each page is a complete plot. However, the page-to-page default origin or user-defined origin stays the same. If a different plot origin is desired on the new page, the origin must be redefined on the new page.

The plotter loads and stabilizes a 48-inch page of media at a time. This page of media is reserved for the incoming plot. However the full 48 inches of media need not be used; the plot is ended at 48 inches or the furthest vector, whichever is smaller. In batch plot mode, media is not cut off after each plot and the take-up core (front roll) must be used. A typical layout of batch plots is shown in Figure 5-2.

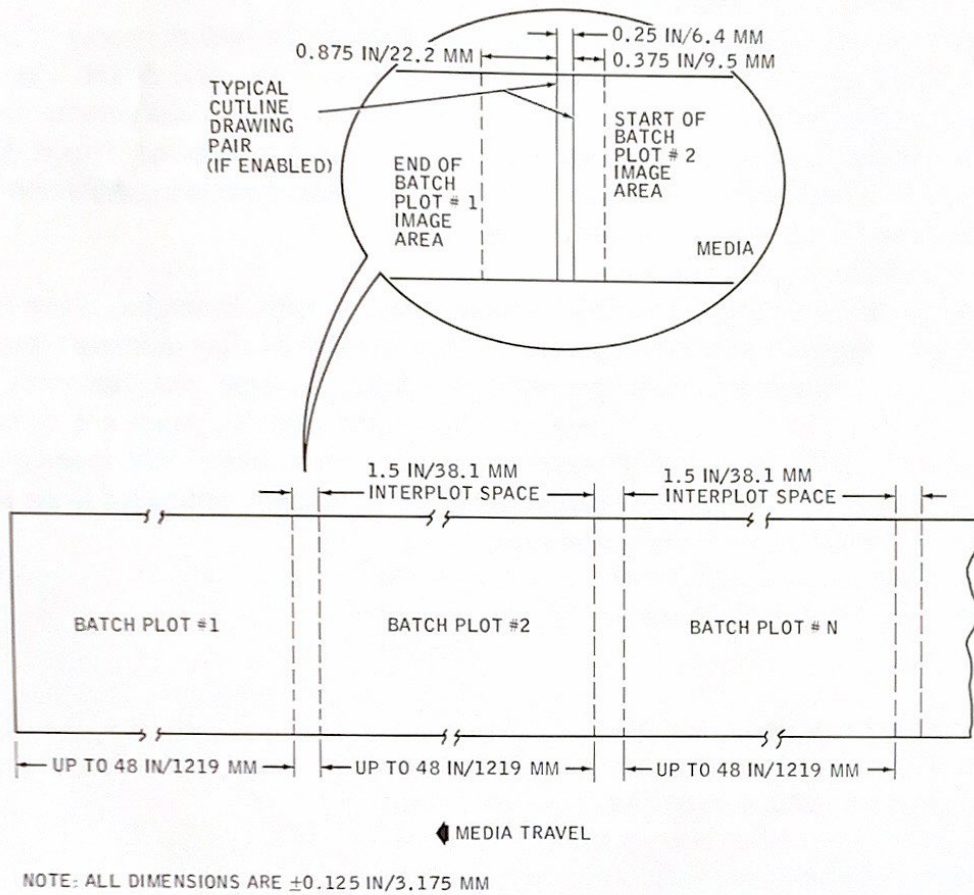


Figure 5-2. Multiple Batch Plot Image and Media Dimensions

BATCH PLOTTING WITH THE ADI DRIVER

The following restrictions apply when using the Cal-Comp-supplied ADI driver in Batch plot mode.

- The Nesting or Batch plot feature cannot be used with overlay features of the ADI driver. The Artisan Plus 1026 advances the media automatically when the end of the plot is detected. This is done to prevent multiple plots from being drawn on top of one another.
- Merge plot mode (an EPP command) is not supported. If it is desired to overlay multiple plots on a single plot page, a single plot file must be created. This single plot file must not contain search address 1, search address 999, index commands or set I/O commands embedded in the plot data.

LONG PLOT

Long plots consist of two or more frames that, when plotted, are contiguous. It is recommended that Long plots not exceed five frames for best results. A frame is a plot segment 48 inches long. The last frame of a long plot can be up to 48 inches long. Plots requiring shorter last frames are automatically terminated at the appropriate size. Frames are advanced using the Frame Advance soft key. The Frame Advance soft key causes the plotter to draw the frame registration marks, read the frame registration marks, advance a section of roll media, stabilize the media (if enabled), read the frame registration marks again, and set internal compensation factors for media skew.

The cutline drawing feature of the Artisan Plus 1026 can be enabled for long plots. This feature automatically draws a pair of lines 1/4 inch apart at the end of the plot to aid in separating roll media plots. These lines are centered at the space between long plots (not frames).

In Long plot mode, media is not cut off after each plot and the take-up core (front roll) must be used. A typical layout of the frames within a long plot and the frame registration marks on the edge of the media is shown in Figure 5-3. Refer to Figure 5-4 for a typical layout of several long plots on roll media.

When plotting using CPGL, it is not necessary to use the Frame Advance soft key to do the frame registration.

LONG PLOT

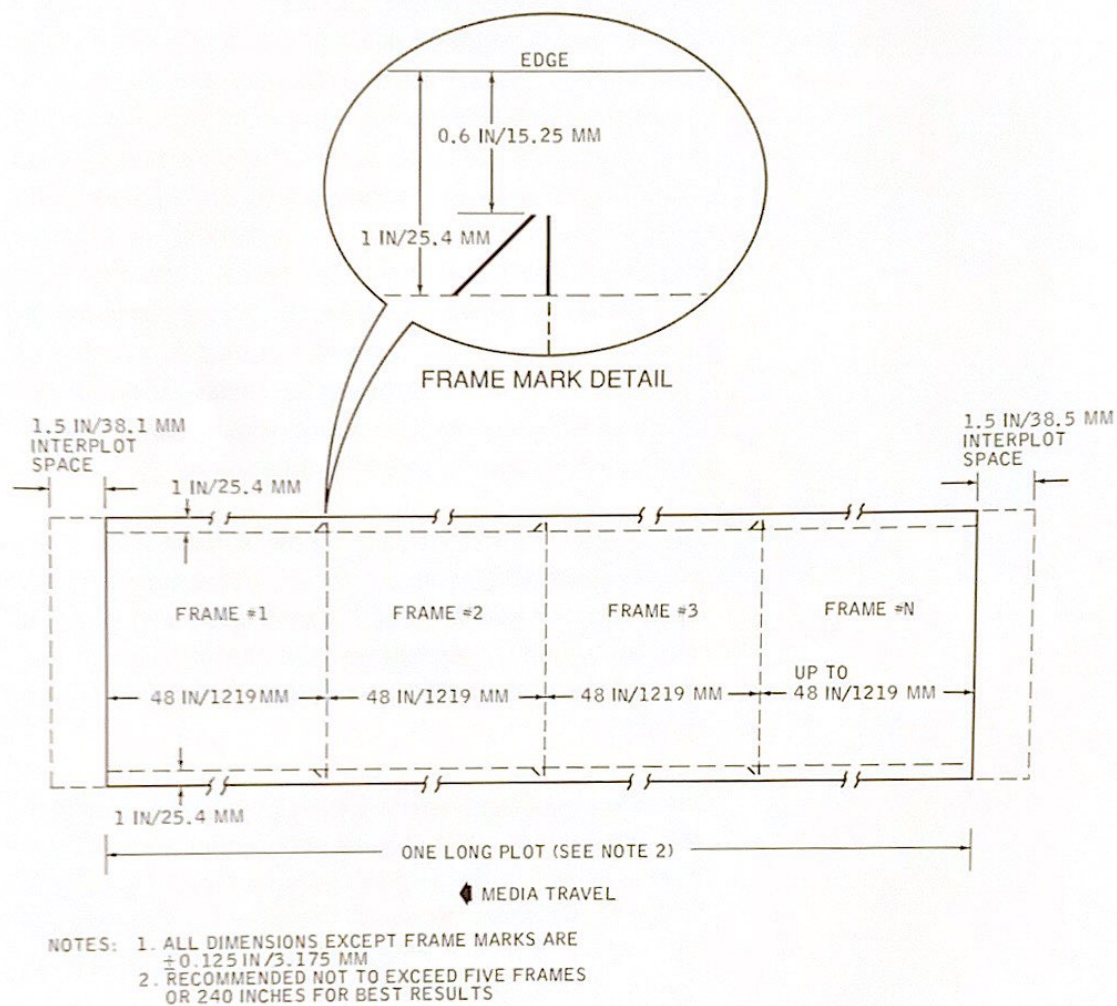
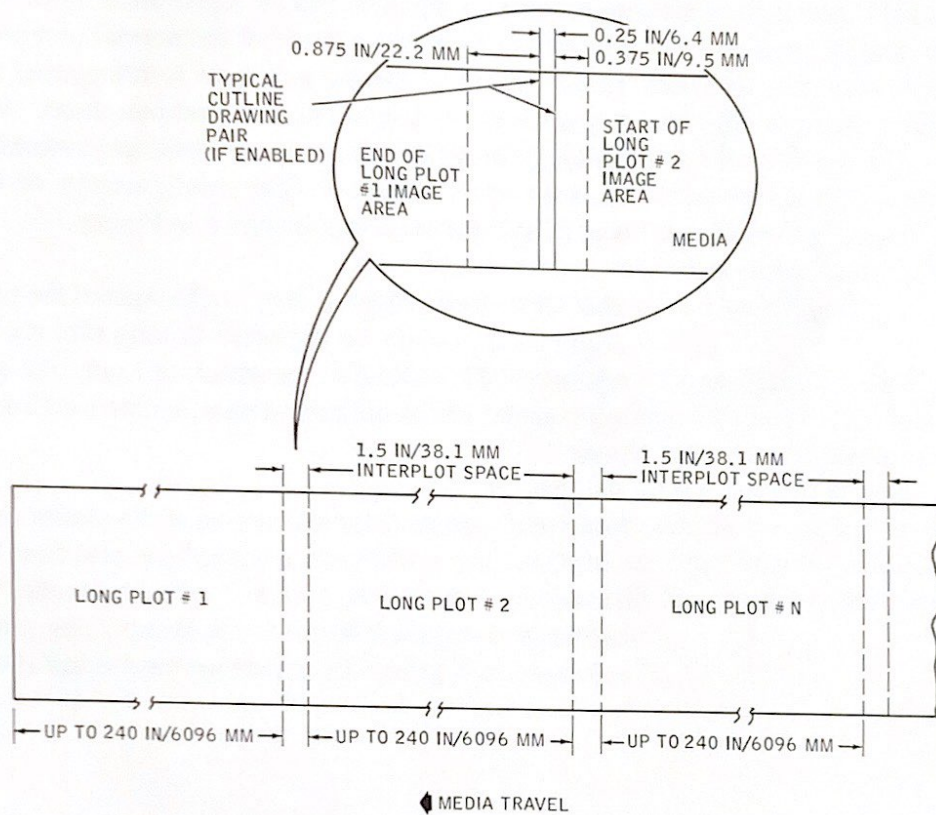


Figure 5-3. Long Plot Frame Layout



NOTE: ALL DIMENSIONS ARE ± 0.125 IN/3.175 MM

Figure 5-4. Multiple Long Plot Image and Media Dimensions

LONG PLOT

The 1026 Artisan Plus requires that a black liquid ink pen (WL4 or WT4) always be in pen position 8 when plotting in the Long plot mode. This pen is used to draw the frame registration marks necessary for alignment during long plot. Frame registration marks are automatically drawn outside of the normal plot area. These marks are sensed and their location used for frame-to-frame alignment and compensation. Any difficulty in reading these frame registration marks is reported to the operator. The configuration of the frame registration marks is shown in Figure 5-3.

The out-of-limits display, the L to the right of the time display, can always be expected in long plot media type plots. This is due to the nature of Long plot and is not an indication of faulty data or a plotter malfunction.

Long plot requires user interaction at the plotter control panel and at the host to resend the plot files for each frame unless an optional memory expansion cartridge is installed. Refer to the Batch/Long mode information if a memory expansion card is installed.

BATCH/LONG PLOT

A combined Batch plot and Long plot capability of the 1026 Artisan Plus is available when the optional memory expansion module is installed. This allows unattended plotting of multiple plots longer than 48 inches. Resending of plot files for each frame is typically not required since the memory expansion module usually holds the entire plot file. The replot feature is also available when the memory expansion is installed. See "Replotting a Drawing" on page 4-56. With the memory expansion cartridge, Long plots and other plots can be intermixed. See Figure 5-5.

Another feature of the Artisan Plus 1026 relevant to Batch plot mode is the End Of File (EOF) clock time out. This feature should be used with those applications or plot files that do not contain an end of plot command. This feature allows the plotter to decide when a plot without an "end of plot" command is complete. See page 5-48 for complete information on the EOF clock time out.

BATCH/LONG PLOT

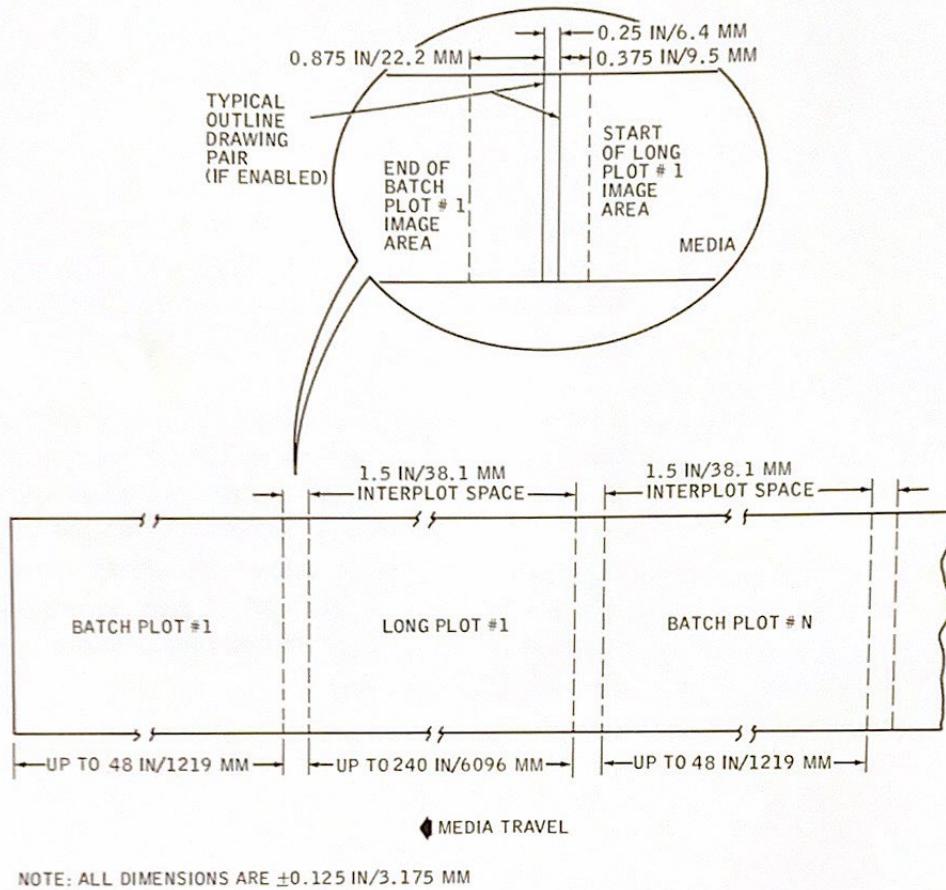


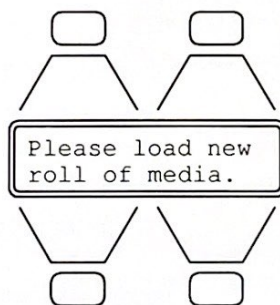
Figure 5-5. Multiple Batch/Long Plot Image and Media Dimensions

CALCOMP ROLL MEDIA

CalComp roll media for the 1026 Artisan Plus is imprinted with a light blue "CalComp" and the media type, e.g., CalComp - Bond, every 12 inches. This imprint is on the media edge closest to the control panel side of the 1026 Artisan Plus. All CalComp roll media has a red end-of-roll warning line on the right side of the roll. This red line is approximately ten feet long and ends at the black end-of-roll mark. The end-of-roll mark is approximately three feet from the physical end of the media.

END OF ROLL SENSING

Whenever media is unrolled from the supply roll, the 1026 Artisan Plus searches for the end-of-roll mark. Whenever this mark is detected, the following is displayed:



The 1026 Artisan Plus remains in an idle condition until this message is acknowledged by raising the pinch rollers. A new roll of media should then be loaded.

ROLL MEDIA STABILIZATION

Media stabilization time is a variable. This variability occurs from the interaction of the media and the atmosphere around the media at the time of use. Adjustments to the media stabilization time may need to be made until the user is familiar with the properties of each media type and the plotter environment. Final plots generally require more stabilization than check plots, and plots requiring exact stabilization should always be done on polyester film.

Relative humidity (RH) is the biggest single factor affecting plot tracking and accuracy when performing long plots on roll paper media. Media, which is made of wood or cotton fibers, is not a stable material. Media is born in a wet process (mixing pulp and water) and is affected by RH of its environment. Variations in humidity and temperature cause paper to expand or contract due to moisture in the air. Changes in humidity and temperature affect the stability of the paper and the accuracy of the plotted drawings. A general rule to follow is that the paper changes less than one percent in a plotting environment of 40 to 60 percent RH and a temperature of 65 to 75 degrees Fahrenheit.

CalComp roll media is packaged at between 45 and 50 percent RH. If the plotter environment RH is between 45 and 50 percent, the unrolled frame of media generally stabilizes in 15 minutes or less. If tracking problems exist during long plots, check the relative humidity in the plotter environment. If the relative humidity is not between 45 and 50 percent, humidity control or media stabilization is required. If the RH is not between 40 and 60 percent, humidity

MEDIA STABILIZATION TIME SETTING

control is mandatory. Consult your local heating and air conditioning expert for recommendations.

Polyester film is a crystalline material. Variations in humidity and temperature have very little effect on its stability and permanence. Polyester film offers the highest stability and accuracy for plotting. Film is excellent for drawings requiring precision and long-term storage.

MEDIA STABILIZATION TIME SETTING

Roll media stabilization time is a waiting period during which the newly unrolled media is allowed to acclimate to the plotter environment before plotting. This feature is active only in any of the roll feed modes. It occurs after the media is unrolled but before the grit tracks are put down. During this cycle, the media stabilization time is displayed as a countdown clock and the plotter is automatically switched to the quiet mode. The default is 0 minutes. The procedural steps for setting the stabilization time are on page 5-43.

EOF CLOCK TIME OUT

The End Of File (EOF) clock time out feature causes the plotter to check for a time out when the input buffer is empty. When the plotter has plotted all the data in the input buffer and the EOF clock time out time, in seconds, has elapsed after the last data from the host, the plotter considers the plot to be complete. This is relevant only to the Batch plot and Batch/Long plot modes. The default is 0 seconds - infinite wait, no timeout.

EOF CLOCK TIME OUT

This feature is intended to allow the following types of plot files to run in Batch or Long plot modes:

- PCI (907, CPGL) plot files without an end of plot or index command.
- 960 format plot files.
- CCGL plot files without a page advance command between plots.

With any of the above plot files, the plotter does not begin the second page or frame of the plot because it has not been told the plot is finished. To compensate for these plot files, the user determines the maximum time period the plotter is to wait without any data input. Once this time is determined, the EOF clock time out is set to that time plus a few seconds to minimize the chance of premature termination of the plot data.

When the EOF clock time out is set for too short a time, the plotter starts the second frame of plotting prior to receiving all the plot data that belongs in the first frame. Should this occur, increase the EOF clock time out setting.

When the EOF clock time out is set for too long a time, a second plot file without the required search address 1 or set I/O is overlayed on top of the previous plot. In 960 format, if an end of plot or index command is not included, the plot is overlayed. Should either of these occur, decrease the EOF clock time out setting.

The procedural steps for setting the EOF clock time out are on page 5-48.

CUTLINE DRAWING

This feature automatically draws a pair of lines 1/4 inch apart to aid in separating roll media plots. These cutlines are located one inch from the end of the completed plot. The default pen selection for cutline drawing is pen 8. If a pen is not loaded into pen position 8, the next lowest pen number, starting at pen 1, is selected to draw the cutlines. The cutline drawing pen selection is not affected by pen grouping.

PEN GROUPING

Pen grouping allows the plotter to treat a group of pens as one pen number. This feature uses each pen to draw for 100 meters before the active pen is automatically exchanged for the next pen in the same group. Grouping pens in this fashion helps to eliminate missing lines due to a pen running out of ink in the middle of a plot. Instead, all pens in a group run out of ink more or less simultaneously. The pen grouping feature is particularly helpful for batch plots since all pens within a group are used to their maximum capability. In Long plot or Batch/Long modes, pen position 8 is not in a group to allow the plotter to draw the frame registration marks.

There is no counting of cycles or interrupting plotting after all pens in a group have been used for 100 meters; the plotter restarts the cycle with the first pen in the group. The distance each pen has plotted starts accumulating when pen grouping is enabled. The plotter resets the accumulated pen grouping distances to zero when the plotter is powered up. The operator should periodically check the pens to ensure that they are not out of ink.

Pen Grouping Turret Loading

When pen grouping is selected, the turret must be loaded according to the pen grouping selected. Table 5-1 shows the order the pens should be loaded into the turret.

Table 5-1. Pen Grouping Turret Positions

Group Size	Turret Loading
4 Groups	pens 1 and 2--1st color pens 3 and 4--2nd color pens 5 and 6--3rd color pens 7 and 8*-4th color
2 Groups	pens 1 through 4--1st color pens 5 through 8*-2nd color
1 Group	pens 1 through 8*-same color
Disabled	As desired

*If Long plots are to be run with the pen group feature engaged, one WL4 or WT4 black ink pen must be inserted in position 8 of the pen turret. Pen 8 is used exclusively to make the frame registration marks necessary for frame-to-frame alignment. Pen 8 is not considered part of the last pen group.

From an applications software point of view, all pen turret positions within a given pen group are considered as one pen number. Pen number commands are treated as modulo pen groups. Basically, in modulo pen group selection, the input pen number command is repeatedly divided by the number of groups. The remainder is the effective pen grouping selection number. Refer to the following examples.

Example 1. Pen Grouping - 2 Groups selected

Input pen number command	Pen group selected
1	1
2	2
3	1
4	2
5	1
6	2
7	1
8	2

Example 2. Pen Grouping - 4 Groups selected

Input pen number command	Pen group selected
1	1
2	2
3	3
4	4
5	1
6	2
7	3
8	4

Example 3. Pen Grouping - 1 Group selected

Input pen number command	Pen group selected
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1

ROLL MEDIA DEFAULT LIMITS

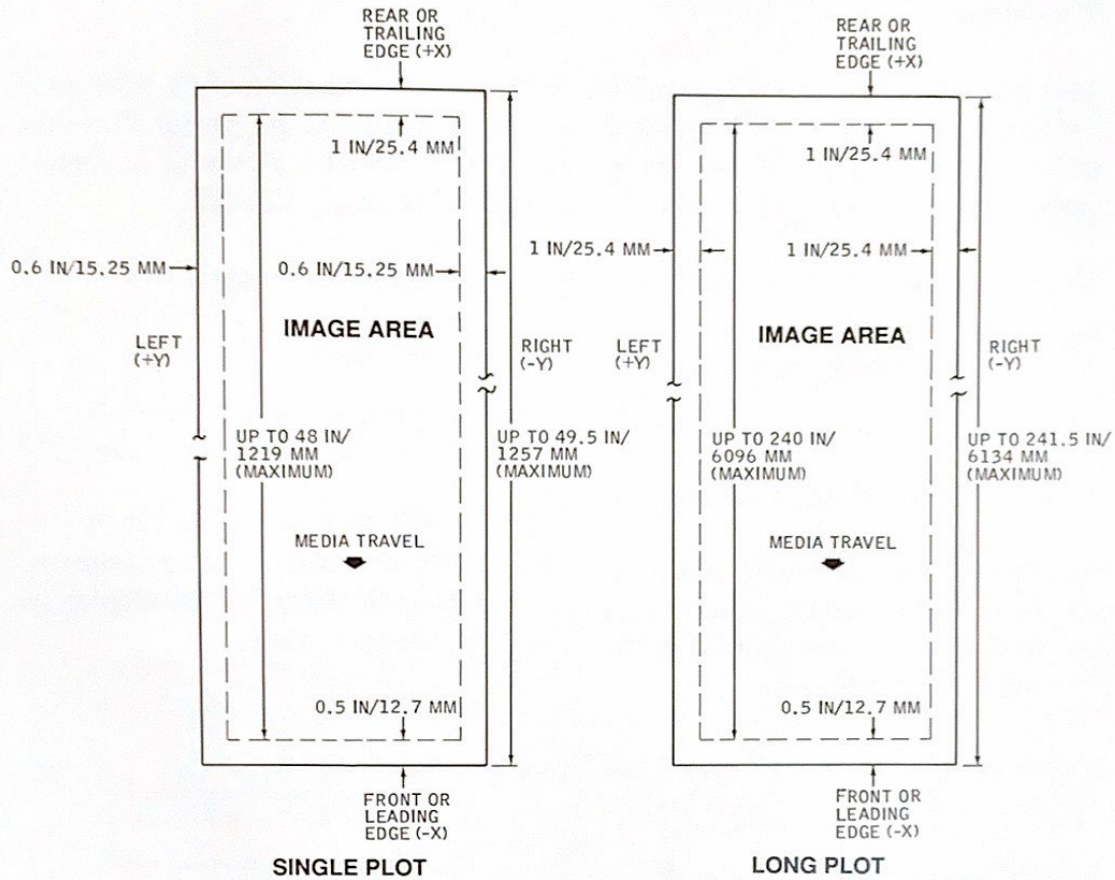
ROLL MEDIA DEFAULT LIMITS

This feature allows the following:

- View the existing limits
- Reset to the default limits
- Define new limits (can be used to crop a drawing)

The plot limits define the area of the plot image. The roll media default limits are shown in Figure 5-6. The use of this feature, the plot limit procedural steps, is described in Chapter 4.

ROLL MEDIA DEFAULT LIMITS



5

Figure 5-6. Roll Media Plot Image Default Limits

TUTORIAL

TUTORIAL

This tutorial is intended to familiarize the user with the roll-mode operation of the Artisan Plus 1026 and illustrate the differences between the 1026 and other Artisan Plus plotters.

The Online function of the Artisan Plus 1026, with the exception of the additional roll mode types of plotting, is identical to the other models in the Artisan Plus line. Refer to the tutorial in Chapter 4 for the basic functions of the plotter in the Online mode. However, the Manual mode is structured differently.

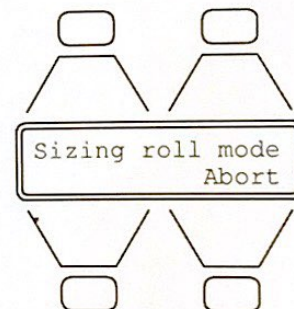
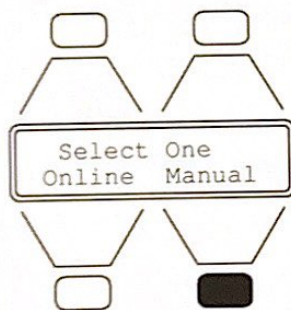
The manual mode of the Artisan Plus 1026 can be entered two ways:

- Media loaded and sized via the main menu structure.
- Media unloaded via the NEXT key.

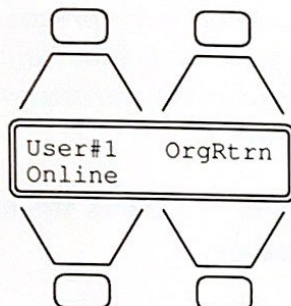
5

Manual Mode - Media Loaded

1. Ensure that the media and pen(s) have been loaded in accordance with Chapter 1 and that the following is displayed:
2. Press the Manual soft key. The following is typical of the display as the media is sized.



3. The Artisan Plus 1026 main menu consists of four pages. After the media is sized, page 1 of the main menu is displayed:

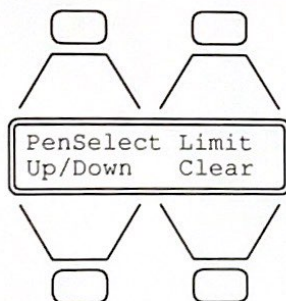


User #1 - Allows selection of set-up parameters for up to four users

OrgRtrn - Returns the pen carriage to the point where the plot started when the plotter went online

Online - Used to start a new plot from the host

4. Press the NEXT key. Page 2 of the main menu is displayed:



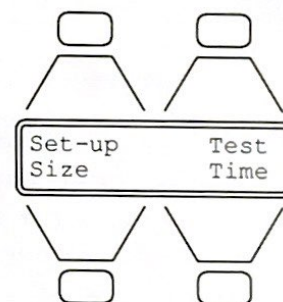
Pen Select - Allows selecting a specific pen

Limit - Allows setting the plot limits to user-defined values or to default values

Up/Down - Allows raising or lowering pen to/from media

Clear - Allows clearing the plot data buffer

5. Press the NEXT key. Page 3 of the main menu is displayed:



Set-up - Allows setting the various parameters for up to four users

Test - Allows running the confidence plot (Chapter 1) and various diagnostics (Chapter 8)

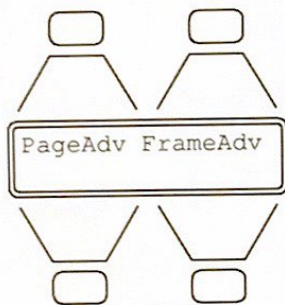
Size - Allows viewing the dimensions of a plot

Time - Allows viewing the total time of a plot

TUTORIAL

6. Press the NEXT key.

Page 4 of the main menu is displayed:



PageAdv - Advances a new section of roll media intended for a complete plot

NOTE

The page to page default origin or user-defined origin stays the same. If a different plot origin is desired on the new page, the origin must be redefined on the new page.

FrameAdv - Draws frame registration marks and advances a new section of roll media intended as one frame of a long plot

7. Press the NEXT key. The display returns to page 1 of the main menu.

NOTE

If the EXIT key is pressed while page 2, 3 or 4 of the main menu is displayed, control is returned to page 1.

Figure 5-7 shows the main menu structure.

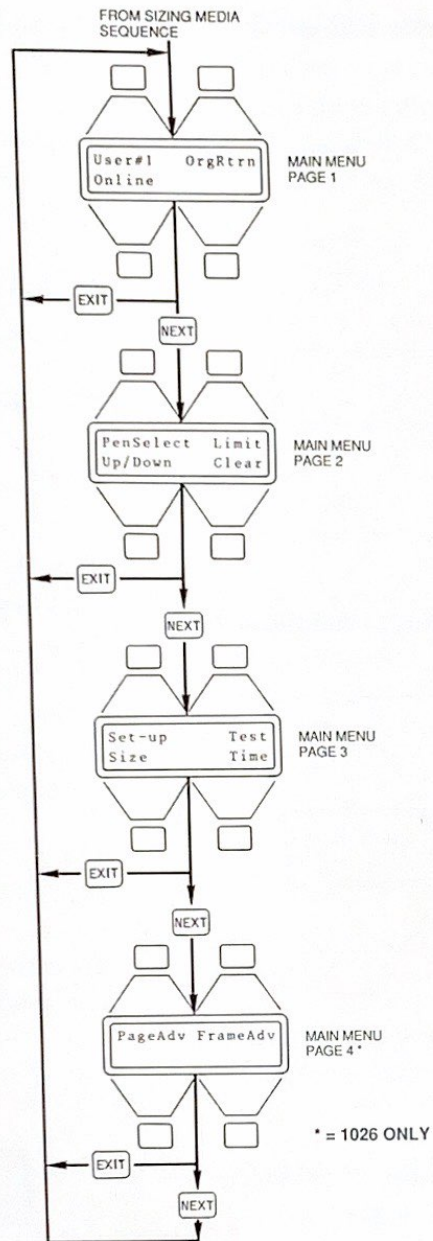
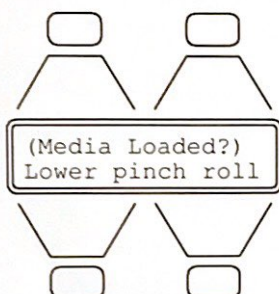


Figure 5-7. Artisan Plus 1026 Main Menu Structure

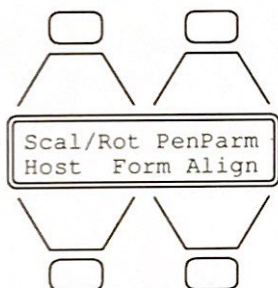
TUTORIAL

Manual Mode - Media Unloaded

1. Power-on the plotter with the cover lowered. The following is displayed:



2. Press the NEXT key. The following is displayed:



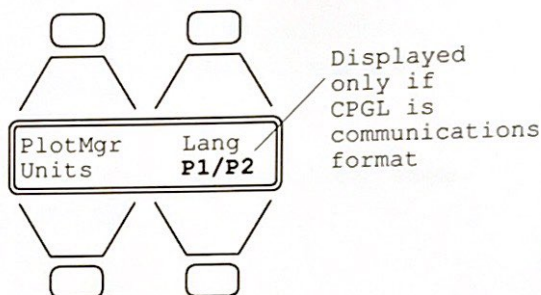
Scal/Rot - Scales a plot (page 4-32)/Changes plot orientation (page 4-34)

Host - Changes host communications parameters (Chapter 3)

PenParm - Changes pen parameters (page 4-36)

FormAlign - Aligns forms (page 4-39)

3. Press the NEXT key. The following is displayed:

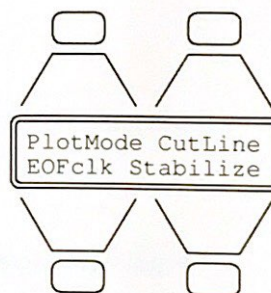


PlotMgr - Allows enabling of the plot manager to minimize plot time (page 4-45)

Units - Allows selecting of either inches or centimeters as the unit of measure to be displayed (page 4-43)

Lang - Allows changing the plotter display language (page 4-47)

4. Press the NEXT key. The following is displayed:



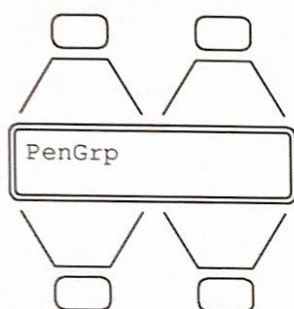
Changes plot modes (page 5-40)

Sets end of file timeout clock
(page 5-48)

Enables cutline drawing (page 5-46)

Sets media stabilization time
(page 5-43)

5. Press the NEXT key. The following is displayed:



From this menu the pen grouping feature is set (page 5-50).

Figure 5-8 shows the Artisan Plus 1026 set-up menu structure.

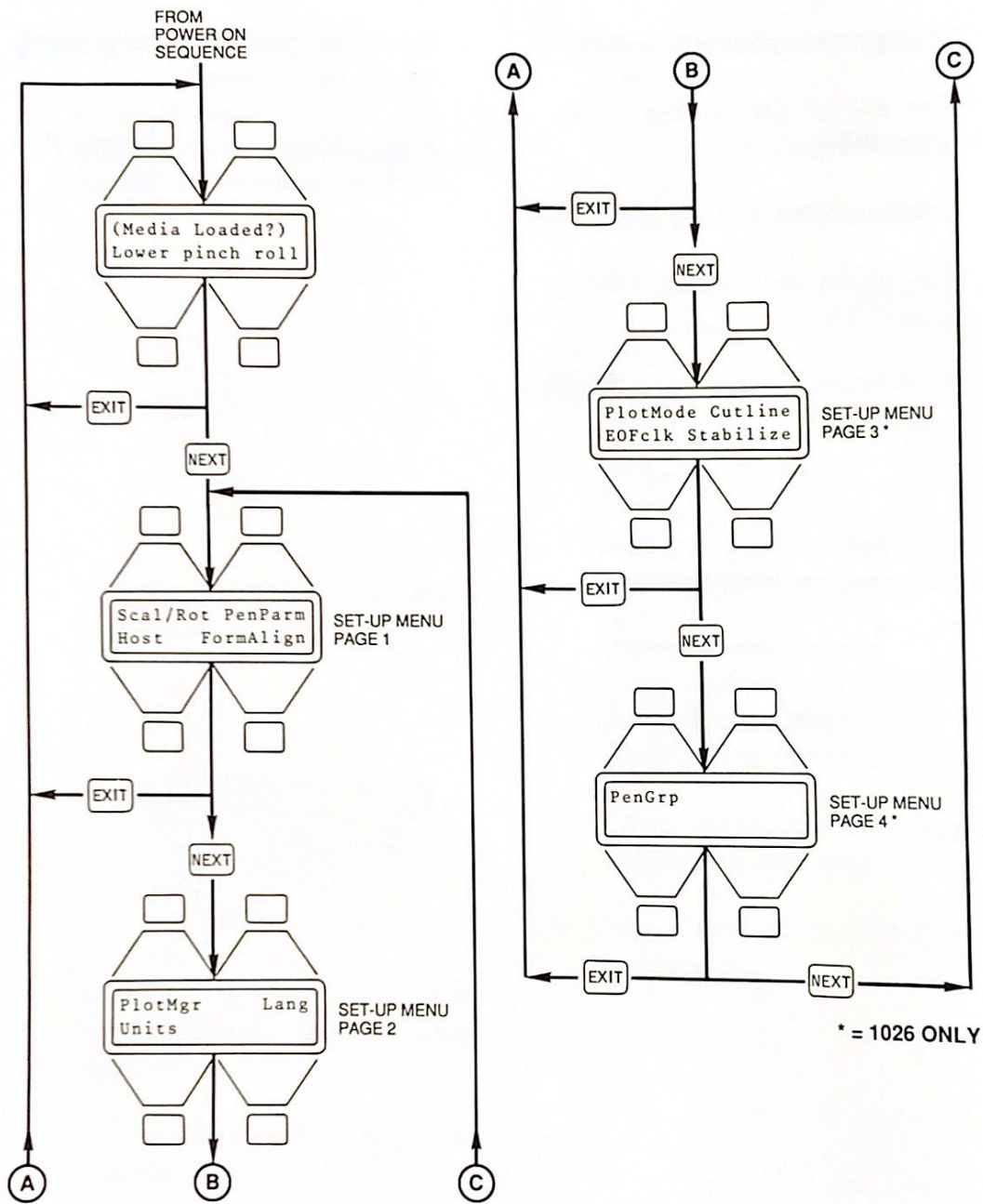


Figure 5-8. Artisan Plus 1026 Set-up Menu Structure

1026 ROLL FEED MEDIA INSTALLATION - BASIC STEPS

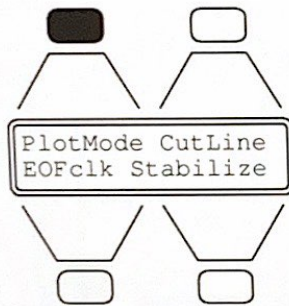
The Artisan Plus 1026 Plotter uses 36-inch wide unpunched roll and cut-sheet media. The plotter is shipped in the cut-sheet mode. See page 1-21 for cut-sheet media installation on the Artisan Plus 1026 Plotter.

To change the plot mode to one of the roll modes and perform the basic steps associated with loading all roll media, proceed as follows.

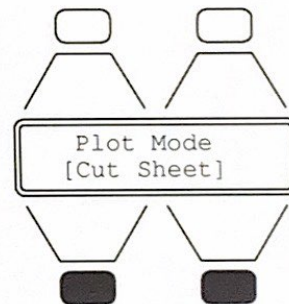
NOTE

If the plotter is already in one of the roll modes, skip to step 7.

1. Power on the plotter with the cover lowered and when the first menu appears, press the NEXT key three times. The following is displayed:



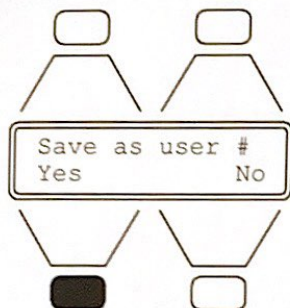
2. Press the PlotMode soft key. The following is displayed:



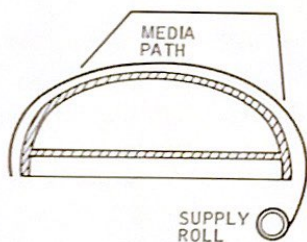
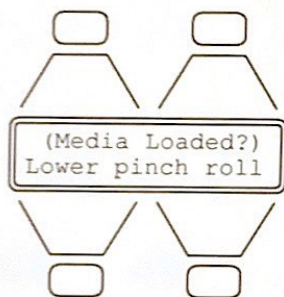
3. Pressing either of the lower soft keys causes the display to cycle through the available media types.
4. Select the appropriate roll feed mode--Batch plot, Long plot, Batch/Long (with Memory Expansion Cartridge only) or Single plot.

1026 ROLL FEED MEDIA INSTALLATION - BASIC STEPS

5. With the desired mode displayed, press the EXIT key twice. The following is displayed:

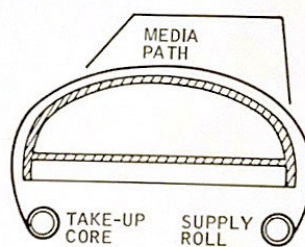


6. Update the User Number as desired and then press the Yes soft key. The following is displayed:



A. SINGLE PLOT MODE

7. Unlock the casters and move the plotter to allow access to the rear of the plotter. Move to the rear of the plotter. Position the roll of media such that the media unrolls toward the rear and from the bottom of the roll. Figure 5-9 shows the roll media path from the rear to the front of the plotter.



B. BATCH, LONG OR
BATCH/LONG PLOT MODES

Figure 5-9. Artisan Plus 1026 Roll Media Path

The spool on the rear of the plotter at the side opposite the control panel is spring loaded and can be depressed to allow the end of the roll to be seated. Match the notch on the supply roll to the key on the spool and mount the supply media roll in place (Figure 5-10). Rotate the spool at the other end until the spool key seats in the supply roll core notch, while holding the supply roll.

8. Unroll several feet of media and feed the media toward the front of the plotter and under the raised pinch rollers. See Figure 5-11.

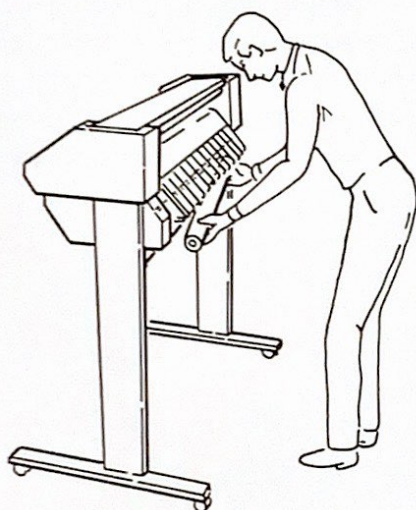


Figure 5-10. Supply Roll Installation

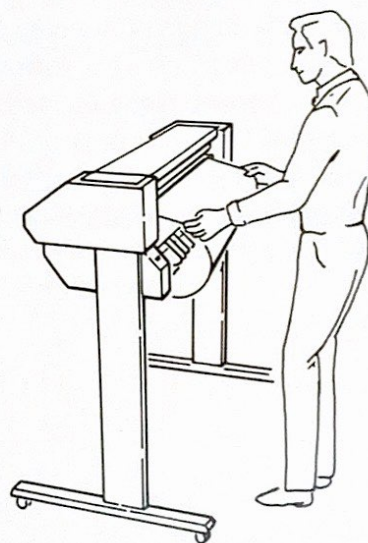


Figure 5-11. Feeding Roll Media from Rear to Front

9. Temporarily lower the pinch rollers to hold the media in place, if necessary, and move to the front of the plotter.

The basic steps of loading roll media have now been accomplished. The next steps of the procedure depend upon the plot mode that will be used. For Single plot mode plotting, the front take-up roll is NOT used and each finished plot is cut off before the start of the next plot. To complete the loading procedure for Single plot mode, refer to the Single plot media loading procedure on the following page. To continue loading media for Batch plot, Long plot or Batch/Long plot modes, refer to the Batch, Long or Batch/Long procedure on page 5-36.

ROLL MEDIA INSTALLATION - SINGLE PLOT MODE

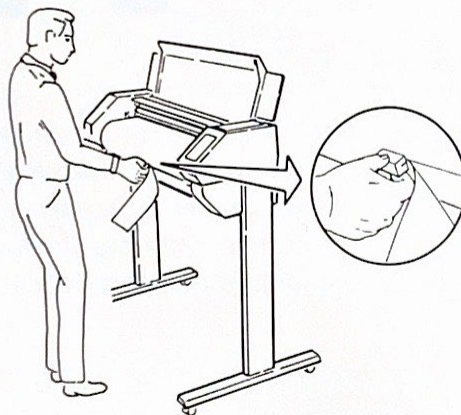
(FRONT TAKE-UP NOT USED)

1. Ensure that the plot mode is set to Single plot (steps 1 through 6 of the 1026 ROLL FEED MEDIA INSTALLATION - BASIC STEPS), the supply roll is installed, and the media is threaded from the rear to the front of the plotter (steps 7 through 9 of the 1026 ROLL FEED MEDIA INSTALLATION - BASIC STEPS).
2. Move to the front of the plotter, raise the pinch roller if necessary, and pull the media until the cut or leading edge is approximately equal with the cutter track.
3. Check that the leading edge of the media is cut squarely.

The leading edge of the media must be cut square to the right edge of the media plus or minus 1/4 inch (6mm). If the media is not cut squarely on the leading edge, proceed as follows. Pull the media approximately six inches past the cutter track, momentarily lower the pinch rollers, pull the media taut and cut off the end using the built-in cutter mechanism. See Figure 5-12.

CAUTION

After cutting the media, position the cutter mechanism outside the media path and raise the pinch rollers.



NOTE
HOLD MEDIA TAUT
DURING CUTTING
OPERATION

Figure 5-12. Using Media Cutter

ROLL MEDIA INSTALLATION - SINGLE PLOT MODE

4. Raise the top cover and with the pinch rollers up, align the right edge of the media with the dashed white edge of media loadline as shown in Figure 5-13.

5. Position the left and right pinch rollers to 1/10 of an inch (2.5 mm) from the edges of the media. Move the pinch roller by its "body" rather than by its lever. (Refer to Figure 5-14.)

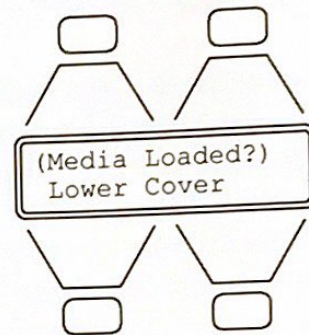
6. Lower the pinch rollers by pushing one of the pinch roller levers towards the rear of the plotter. This action lowers both pinch rollers.

7. Gently push down on the pinch roller lever after lowering the pinch rollers to ensure firm engagement of roller with media.

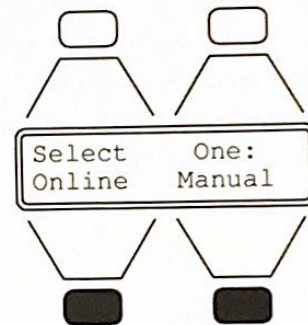
NOTE

When the plotter is not in use, raise the pinch rollers to prevent the rubber rollers from developing flat spots.

8. Media is now aligned on the plotter. The following is displayed:



9. Lower the top cover. The following is displayed:



10. Press the desired soft key to start the media sizing operation. In Single plot mode, the media must be cut off at the cutter bar track to allow the plotter to find the cut edge.

ROLL MEDIA INSTALLATION - SINGLE PLOT MODE

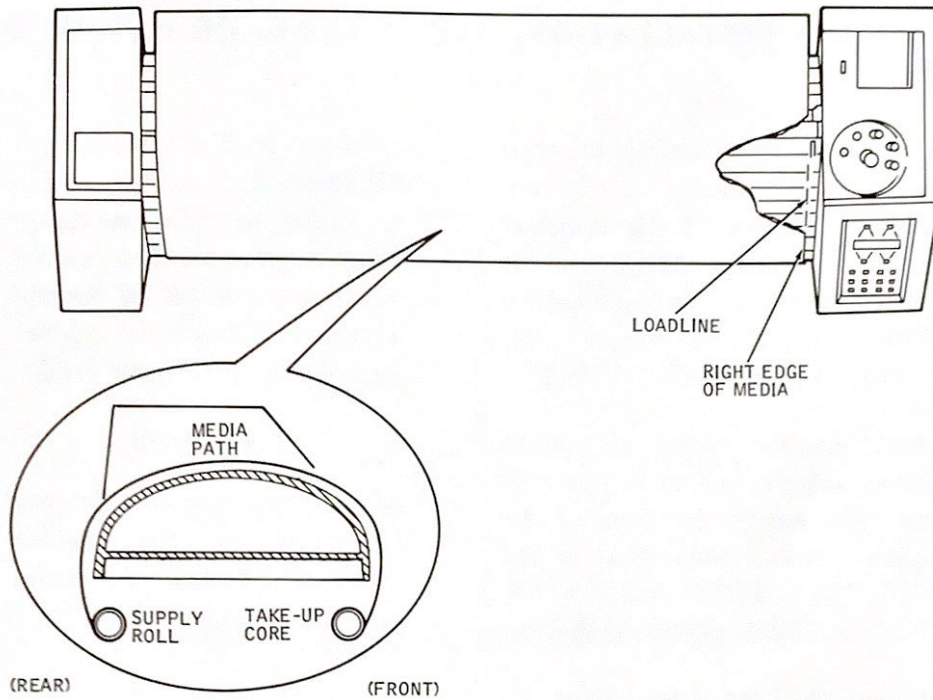


Figure 5-13. Media Loadline

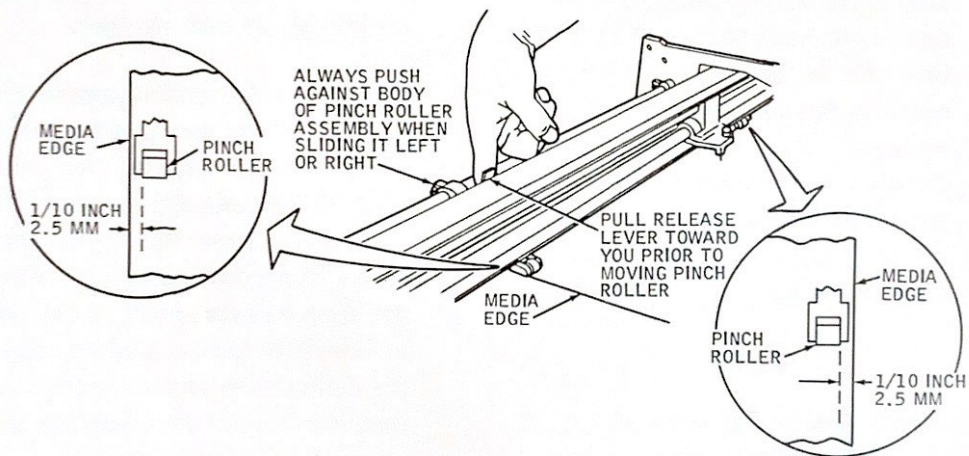


Figure 5-14. Pinch Rollers

ROLL MEDIA INSTALLATION- BATCH, LONG, OR BATCH/LONG MODE

ROLL MEDIA INSTALLATION- BATCH, LONG, OR BATCH/LONG MODE

1. Ensure that the plot mode is set to Batch plot, Long plot, or Batch/Long plot (if the optional memory expansion cartridge is installed). See steps 1 through 6 of the 1026 ROLL FEED MEDIA INSTALLATION - BASIC STEPS.
2. Check that the supply roll is installed and the media is threaded from the rear to the front of the plotter (steps 7 through 9 of the 1026 ROLL FEED MEDIA INSTALLATION - BASIC STEPS).
3. Move to the front of the plotter and install the take-up core onto the front take-up spools. The left front take-up spool is spring loaded and can be pressed in to allow the end of the core to be seated. Match the notch in the take-up core to the key on the left take-up spool and mount the take-up core in place. Rotate the right spool while holding the take-up core until the right spool key seats in the take-up core notch.

NOTE

Media that is cut squarely on the leading edge is much easier to tape to the middle of the take-

up core. Pull the media approximately six inches beyond the cutter track, momentarily lower the pinch rollers, pull the media taut and cut off the end using the built-in cutter mechanism. See Figure 5-12.

CAUTION

After cutting the media, be sure to position the cutter mechanism outside the media path and raise the pinch rollers.

4. Pull the cut end of the media toward the take-up core until the middle of the cut end is at the approximate middle of the take-up core.
5. Check the left-right alignment of the media. Be sure the right edge of the media is flush with the face of the spool at the control panel end of the front roll. Tape the approximate center of the cut end of the media to the approximate center of the take-up core. The position of the edge of the media with respect to the white loadline is ignored when the front roll is used. See Figure 5-15.

ROLL MEDIA INSTALLATION- BATCH, LONG, OR BATCH/LONG MODE

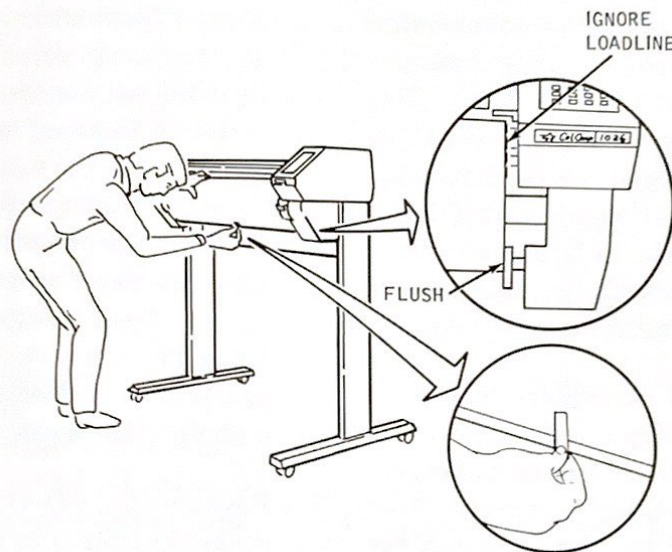


Figure 5-15. Securing Media to the Front Roll

5

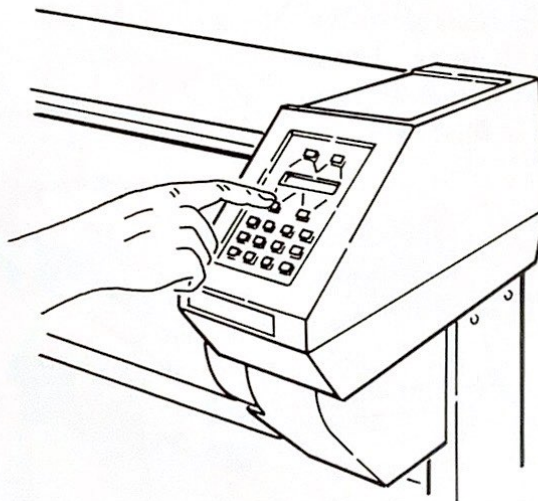


Figure 5-16. Media Take-up Soft Keys

ROLL MEDIA INSTALLATION- BATCH, LONG, OR BATCH/LONG MODE

6. Press any soft key on the control panel and hold down for about five seconds (see Figure 5-16). This causes approximately five feet of media to wind up on the front take-up core. This length of media is a buffer necessary to insure the media is not pulled off the take-up core during the media sizing operation.

Observe the media as it is taken up. The right edge of the media should be flush with the face of the take-up spool at the control panel end of the media, and the media should not bunch up or telescope on the take-up core. The front and rear spools at the end of the plotter opposite the control panel are adjustable to compensate for slight variations in media widths and core lengths. These spools are adjusted so that the face of the right spool is flush with the

edge of the media and the left spool allows enough room for the media to wind without bunching. If the spool is adjusted too tightly, it causes the media to bunch up on the edge. If the left spool is adjusted too loosely, it allows the media to telescope or weave as it is being rolled up. To adjust the spool, hold onto the media core or roll with one hand and rotate the flange on the spool with the other hand.

7. Position the left and right pinch rollers to $1/10$ of an inch (2.5 mm) from the edges of the media. Move the pinch roller by its "body" rather than by its lever. (Refer to Figure 5-17.)

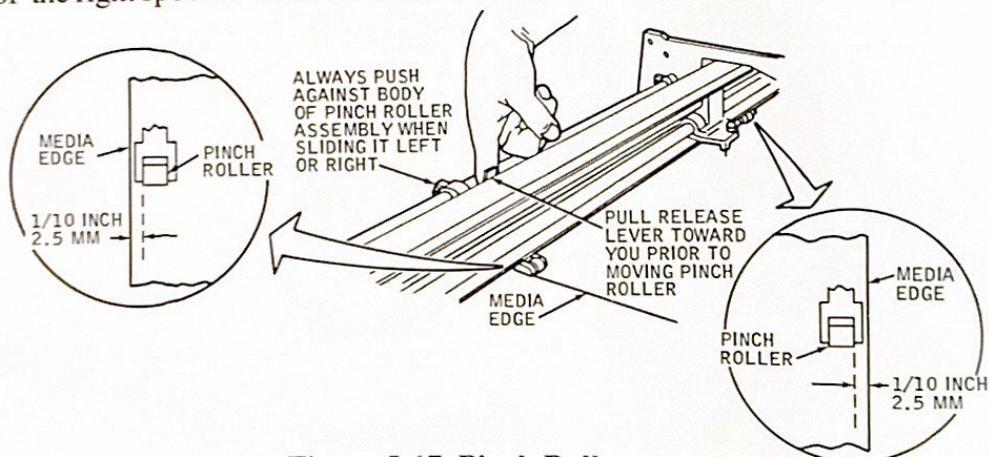


Figure 5-17. Pinch Rollers

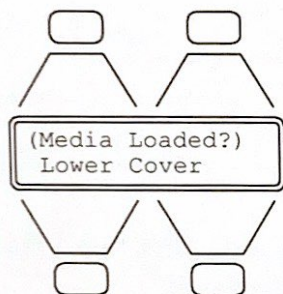
ROLL MEDIA INSTALLATION- BATCH, LONG, OR BATCH/LONG MODE

8. Lower the pinch rollers by pushing one of the pinch roller levers towards the rear of the plotter. This action lowers both pinch rollers.
9. Gently push down on the pinch roller lever after lowering the pinch rollers to ensure firm engagement of roller with media.

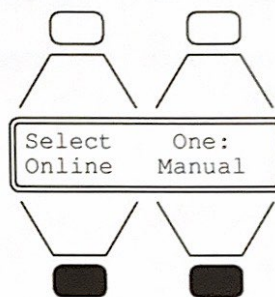
NOTE

When the plotter is not in use, raise the pinch rollers to prevent the rubber rollers from developing flat spots.

10. Media is now installed on the plotter. The following is displayed:



11. Lower the top cover. The following is displayed:



12. Press the desired soft key to start the media sizing operation. In Batch, Long or Batch/Long plot modes, the media must be taped to the front roll to allow the plotter to roll up the completed plots.

OPERATIONS

OPERATIONS

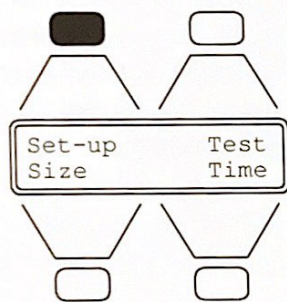
CHANGING PLOT MODES

This feature is used to change the plot mode of the Artisan Plus 1026 to one of the following

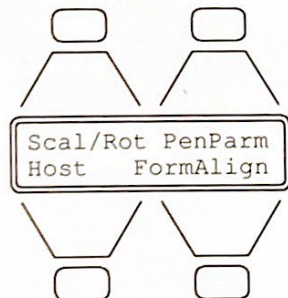
- Cut sheet
- Single plot
- Batch plot
- Long plot
- Batch/Long (available only if optional memory expansion cartridge is installed)

The default plot mode is Cut sheet. To use this feature proceed as follows:

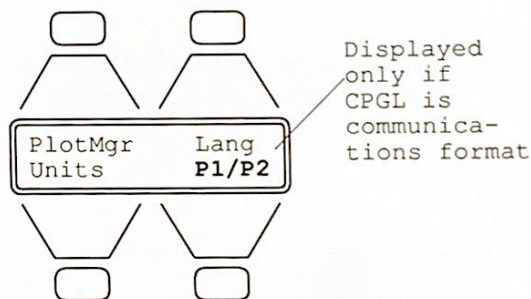
1. Display page 3 of the main menu.



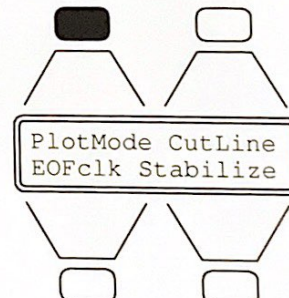
2. Press the Set-up soft key. The following is displayed:



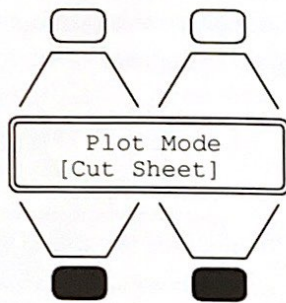
3. Press the NEXT key. The following is displayed:



4. Press the NEXT key. The following is displayed:

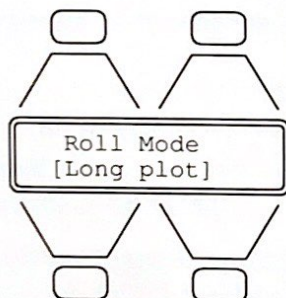


5. Press the PlotMode soft key. The following is displayed:

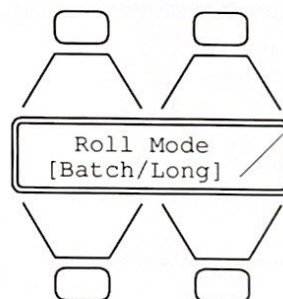


6. Pressing either lower soft key allows the available plot modes to be displayed. The available selections are A, B, and C as follows:

A

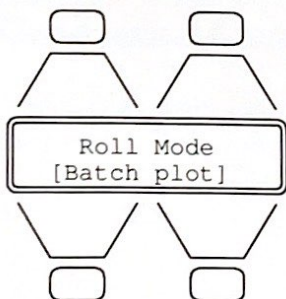


or

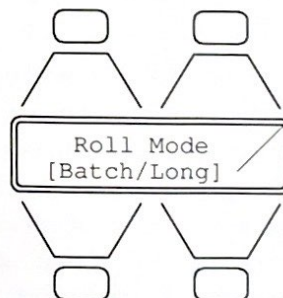


Displayed only if memory expansion is installed

B



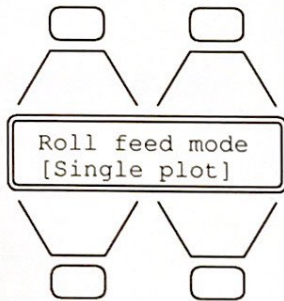
or



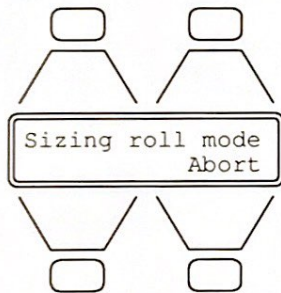
Displayed only if memory expansion is installed

OPERATIONS

C

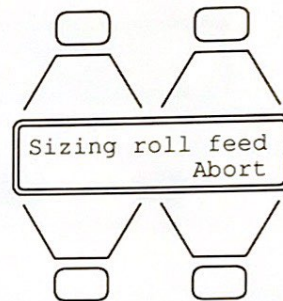


Select the desired plot mode. Note that during the media sizing operation after the media is in position, the plotter displays a message regarding the type of media that is being sized. This message interlocks the plot mode with the type of media the plotter is expecting to size. For example, when sizing media for a Batch plot, the message displayed is as follows:



This message lets the user know that the plotter expects to size roll media and that the media is to be rolled on the front roll. Comparing a roll mode message with a roll feed message illustrates the difference in modes. During Single plot mode,

the plotter expects that the roll of media is installed on the rear roll but the front roll is not used. During single plot media sizing, the following is displayed:



An appropriate message is displayed during each media sizing operation to interlock the user with the plotter mode and the type of media the plotter is attempting to size.

7. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

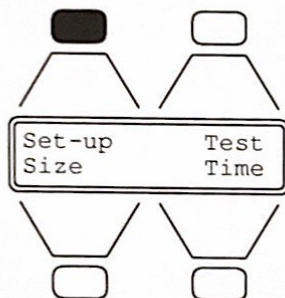
8. If changes were made, proceed to Saving Set-up Changes procedure, (page 5-52).

SETTING MEDIA STABILIZATION TIME

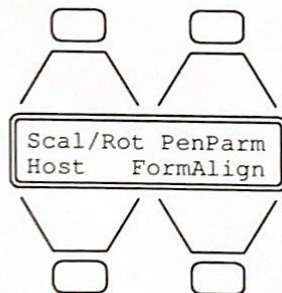
This feature is used to set the roll media stabilization time. During media stabilization time, the media is allowed to acclimate to the plotter environment after it has been fed from the roll. During media stabilization, the plotter is switched to the quiet mode and the media stabilization time is displayed as a countdown clock. Recommended media stabilization time is given in Table 5-2. The default for this parameter is 0 minutes, no stabilization time.

To use this feature proceed as follows:

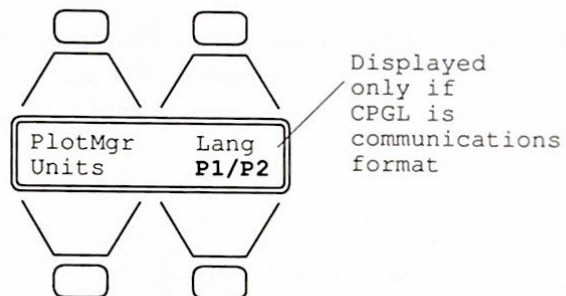
1. Display page 3 of the main menu.



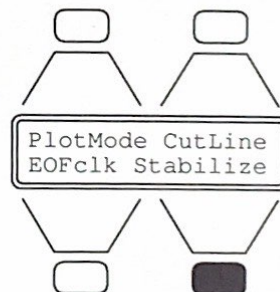
2. Press the Set-up soft key. The following is displayed:



3. Press the NEXT key. The following is displayed:

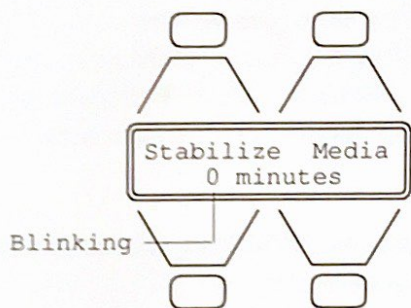


4. Press the NEXT key. The following is displayed:



SETTING MEDIA STABILIZATION TIME

5. Press the Stabilize soft key. The following is displayed:



6. Using numeric/axis direction keys, enter the stabilization time in minutes. The range is from 0 to 99 minutes.

7. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

8. If changes were made, proceed to Saving Set-up Changes procedure, (page 5-52).

Table 5-2. RECOMMENDED MEDIA STABILIZATION TIME

Media Type	Stabilization Time in Minutes	
	90% Acclimation	100% Acclimation
Translucent	30	60
Bond	30	60
Vellum 1411	30	60
Premium Vellum	30	60
Polyester Film	0	0

ENABLING CUTLINE DRAWING

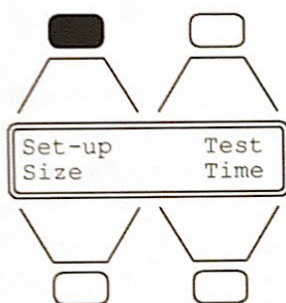
ENABLING CUTLINE DRAWING

This feature of the Artisan Plus 1026 is used to automatically draw a pair of lines 1/4 inch apart after each plot to aid in separating roll media plots.

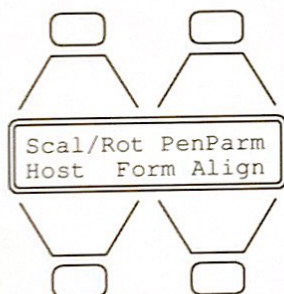
The default setting is cutline disabled.

To use this feature proceed as follows:

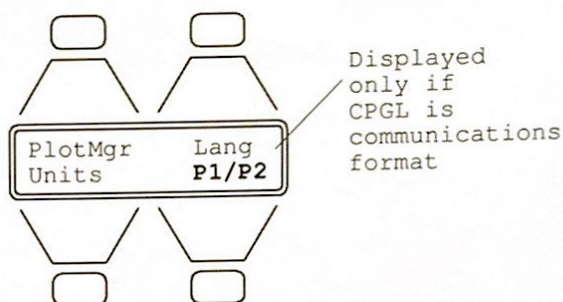
1. Display page 3 of the main menu.



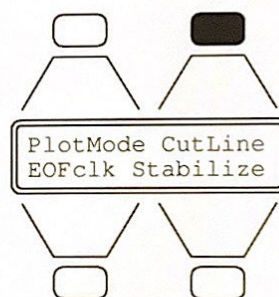
2. Press the Set-up soft key. The following is displayed:



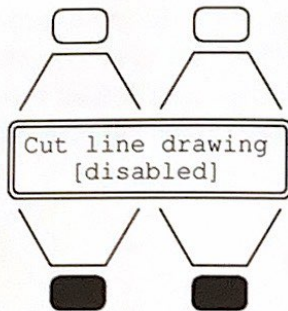
3. Press the NEXT key. The following is displayed:



4. Press the NEXT key. The following is displayed:



5. Press the Cutline soft key. The following is displayed:



6. Pressing either bottom soft key causes the display to alternate between disabled and enabled.
7. Select the desired mode.

8. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

8. If changes were made, proceed to Saving Set-up Changes procedure, (page 5-52).

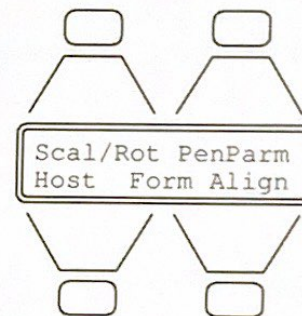
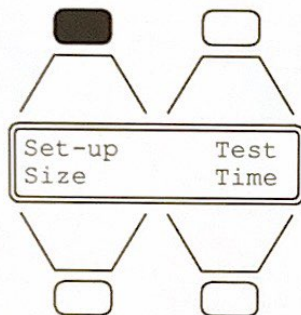
SETTING END OF FILE (EOF) CLOCK TIME OUT

SETTING END OF FILE (EOF) CLOCK TIME OUT

This feature causes the plotter to check for a time out when the input buffer is empty. The time out checked for is the EOF clock time out. After the input buffer is empty and the EOF clock times out, the plotter considers the plot to be complete. This is relevant only to batch plots and batch/long media modes. The default for this feature is 0 seconds - infinite wait, no timeout. Refer to EOF Clock Timeout on page 5-15 for details on this setting.

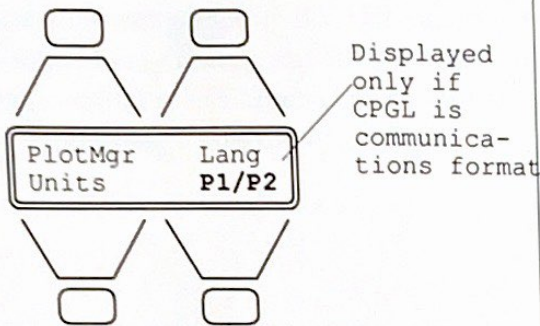
To use this feature proceed as follows:

1. Display page 3 of the main menu.
2. Press the Set-up soft key. The following is displayed:

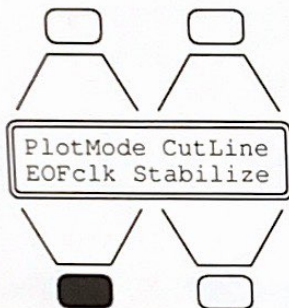


SETTING END OF FILE (EOF) CLOCK TIME OUT

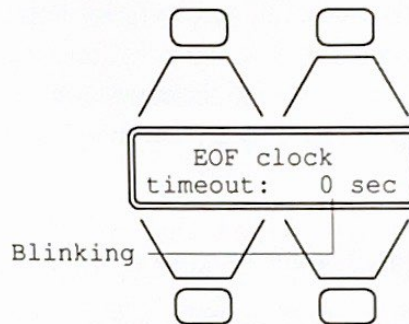
3. Press the NEXT key. The following is displayed:



4. Press the NEXT key. The following is displayed:



5. Press the EOFclk soft key. The following is displayed:



6. Using numeric/axis direction keys, enter the time out time in seconds. The range is from 0 to 999 seconds.
7. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

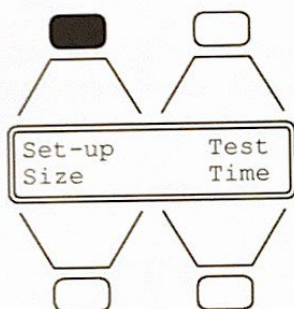
8. If changes were made, proceed to Saving Set-up Changes procedure, (page 5-52).

PEN GROUPING

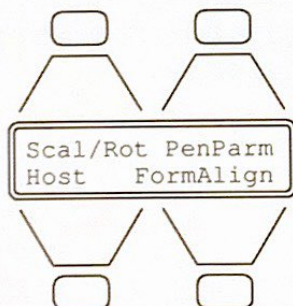
This feature allows the plotter to treat a group of pens as one pen number. Pen grouping uses each pen to draw 100 meters before the active pen is automatically exchanged for the next pen in the same group. Refer to the pen grouping description on page 5-17 for application and turret loading information. The available pen grouping selections are disabled, 1 group, 2 groups or 4 groups. The default is disabled.

To use this feature proceed as follows:

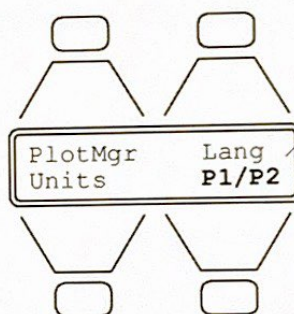
1. Display page 3 of the main menu.



2. Press the Set-up soft key. The following is displayed:

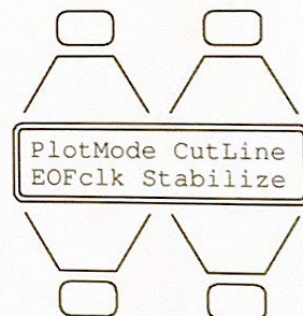


3. Press the NEXT key. The following is displayed:

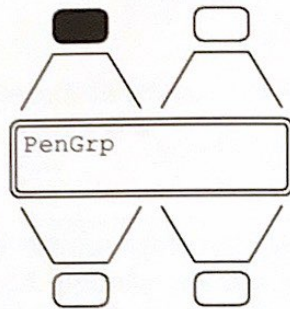


Displayed only if CPGL is communications format

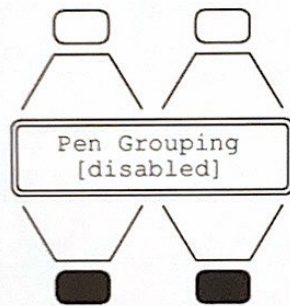
4. Press the NEXT key. The following is displayed:



5. Press the NEXT key. The following is displayed:



6. Press the PenGrp soft key. The following is displayed:



7. Pressing either lower soft key allows the available pen groupings to be displayed. Select the desired pen grouping.

8. Press the EXIT key twice.

NOTE

The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

9. If changes were made, proceed to Saving Set-up Changes procedure, (page 5-52).

SAVING SET-UP CHANGES

SAVING SET-UP CHANGES

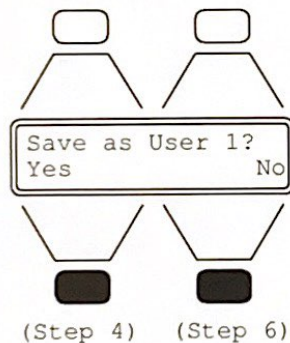
This procedure is the same as the "Saving Set-up Changes" procedure in Chapter 4. It is included in this chapter for ease of reference.

Prior to performing this procedure, it is recommended that the user read the entire procedure and refer to Figure 5-18. Figure 5-18 on page 5-54 is a summary of the procedure.

NOTE

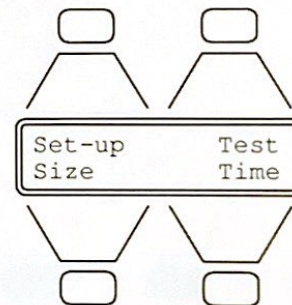
The saving changes message "Save as User 1?" only occurs if some parameter in the set-up procedure has been changed.

1. Press the EXIT key until the following is displayed:



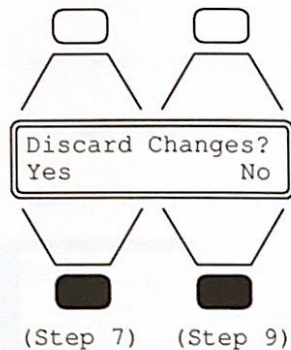
2. This function gives the user the option of permanently saving the changes just made, temporarily saving the changes, or discarding them. In addition, the changes can be assigned to any one of four users (1, 2, 3, or 4).

3. To assign a user number to the changes, use the numeric keys to enter the user number 1, 2, 3, or 4.
4. **To permanently save the changes,** press the Yes soft key. The following is displayed:

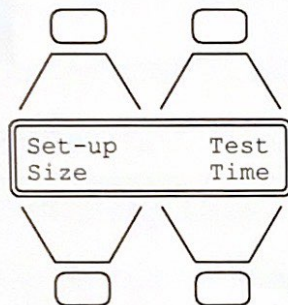


5. Proceed to step 10.

6. To temporarily save or discard the changes, press the No soft key. The following is displayed:

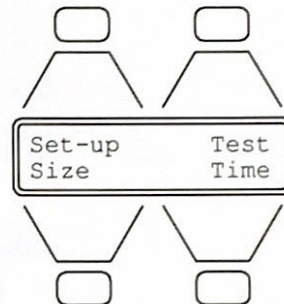


7. If the Yes soft key is pressed, the changes are not saved and the following is displayed:

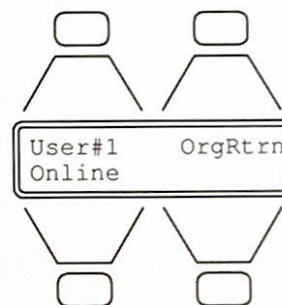


8. Proceed to step 10.

9. If the No soft key is pressed, the changes are temporarily saved until power is removed for immediate use. The following is displayed:



10. Press the EXIT key. The following is displayed:



SAVING SET-UP CHANGES

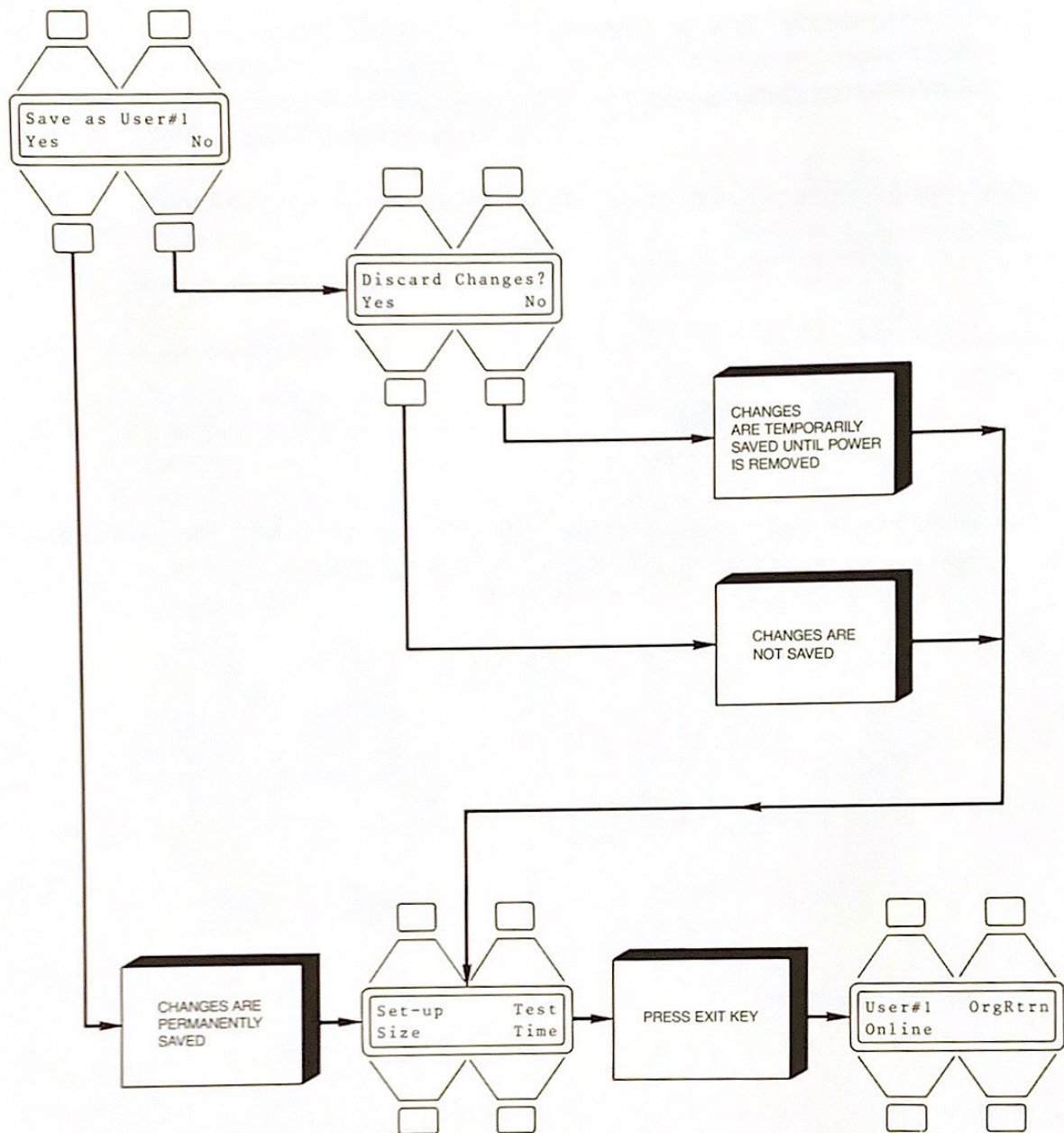


Figure 5-18. Save Procedure Summary

TYPICAL SINGLE PLOT SEQUENCE

The following procedure represents the steps needed to produce a plot in the Single plot mode.

1. Apply power (Chapter 1)
2. Load pen turret (Chapter 1)
3. Connect plotter to host (Chapter 2)
4. Establish plotter/host communication (Chapter 3)
5. Set plotter parameters (Chapter 4)
6. Set roll mode features (Chapter 5)
7. Select mode and load media. Front roll not used (Chapter 5)
8. Place plotter Online (Chapter 4)
9. Size and stabilize media (Chapter 5)
10. Send plot file from host to plotter (Host Documentation)
11. Perform page advance at end of plot (Menu prompt)
12. Cut plot from roll using media cutter (Menu prompt)
13. Place plotter Online ready to start next cycle

TYPICAL BATCH PLOT SEQUENCE

TYPICAL BATCH PLOT SEQUENCE

The following procedure represents the steps needed to produce plots in the Batch plot mode.

1. Apply power (Chapter 1)
2. Load pen turret (Chapter 1)
3. Connect plotter to host (Chapter 2)
4. Establish plotter/host communication (Chapter 3)
5. Set plotter parameters (Chapter 4)
6. Set roll mode features (Chapter 5)
7. Select mode and load media. Tape media to front roll (Chapter 5)
8. Place plotter Online (Chapter 4)

NOTE

The page-to-page default origin or user-defined origin stays the same. If a different plot origin is desired on the new page, the origin must be redefined on the new page.

9. Size and stabilize media (Chapter 5)
10. Send plot file from host to plotter (Host Documentation)
11. Perform page advance at end of plot (Host Application Package or manual operation - see description below)
12. Size and stabilize media (Chapter 5)
13. Send next plot file from host
14. Repeat steps 11 through 13 for next batch plot

TYPICAL BATCH PLOT SEQUENCE

Batch Plot Considerations

960 The End Of File (EOF) time out clock must be set in order for the plotter to know the end of the plot. See the EOF Clock Time Out on page 5-15 for application information.

CPGL The End Of File (EOF) time out clock must be set in order for the plotter to know the end of the plot. See the EOF Clock Time Out on page 5-15 for application information.

OR

Any of the supported page advance commands must be inserted between plots. If a page advance command is not between plots, the only alternative is to do a manual page advance.

PCI The End Of File (EOF) time out clock must be set in order for the plotter to know the end of the plot. See the EOF Clock Time Out on page 5-15 for application information.

OR

A search address 1 or Set I/O must be at the beginning of the plot file.

OR

A search address 9999 or Index command must be at the end of the plot file to signify end of plot.

TYPICAL LONG PLOT SEQUENCE - WITHOUT MEMORY EXPANSION

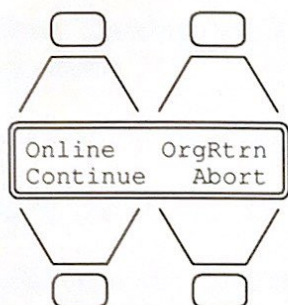
TYPICAL LONG PLOT SEQUENCE - WITHOUT MEMORY EXPANSION

The following procedure represents the steps needed to produce a plot in the Long plot mode if you do not have the optional memory expansion cartridge.

1. Apply power (Chapter 1)
2. Load pen turret (Chapter 1)
3. Connect plotter to host (Chapter 2)
4. Establish plotter/host communication (Chapter 3)
5. Set plotter parameters (Chapter 4)
6. Set roll mode features (Chapter 5)
7. Select mode and load media. Tape media to front roll (Chapter 5)
8. Place plotter Online (Chapter 4)
9. Size and stabilize media (Chapter 5)
10. Send plot file from host (Host Documentation). The plotter begins plotting those vectors that are within the first frame of the plot. Periods of apparent inactivity are to be expected as the plotter sorts out those vectors that are outside the first frame.
11. After the first frame is plotted, and the host has finished sending the entire plot, use the EXIT key and Continue soft key to clear all index commands, stop commands, etc. This command clearing action is necessary only if your CAD package uses several end of file commands.

TYPICAL LONG PLOT SEQUENCE - WITHOUT MEMORY EXPANSION

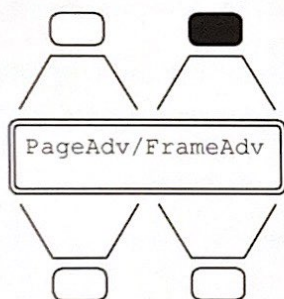
After all end-of-plot file commands are cleared, the following is displayed:



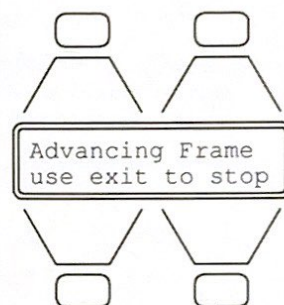
NOTE

DO NOT press the Abort soft key between frames of a Long plot unless you wish to abort this plot. This is a fatal abort.

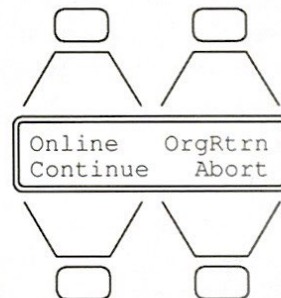
12. Press the NEXT key three times. The following is displayed:



13. Press the Frame Adv soft key. The following is displayed:

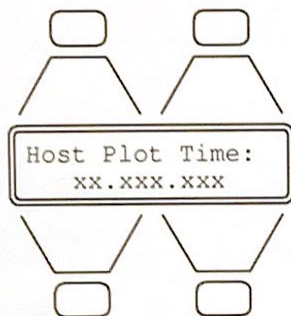


14. At the end of the frame advance cycle, press the EXIT key. The following is displayed:



TYPICAL LONG PLOT SEQUENCE - WITHOUT MEMORY EXPANSION

15. Press the Continue soft key. The following is displayed:



17. Repeat steps 11 through 16 until all frames of the Long plot have been plotted.

5

16. Send the plot file from the host again. The plotter begins plotting those vectors that are within the second frame of the plot. Periods of apparent inactivity are to be expected as the plotter sorts out those vectors that are outside the second frame.

TYPICAL BATCH/LONG PLOT SEQUENCE

(OPTIONAL MEMORY EXPANSION CARTRIDGE INSTALLED)

The following procedure represents the steps needed to produce plots in the Batch/Long mode.

1. Verify optional memory expansion cartridge is installed (Chapter 1)
2. Apply power (Chapter 1)
3. Load pen turret (Chapter 1)
4. Connect plotter to host (Chapter 2)
5. Establish plotter/host communication (Chapter 3)
6. Set plotter parameters (Chapter 4)
7. Set roll mode features (Chapter 5)
8. Select mode and load media. Tape media to front roll (Chapter 5)
9. Place plotter Online (Chapter 4)
10. Size and stabilize media (Chapter 5)
11. Send plot file from host (Host Documentation). The plotter begins plotting those vectors that are within the first page or frame of the plot. For a long plot, periods of apparent inactivity are to be expected as the plotter sorts out those vectors that are outside the first frame.
12. The page or frame is advanced as directed by the plot file and the plot is completed.
13. A new page of media is loaded and stabilized and the new file is plotted.

CPGL NOTE

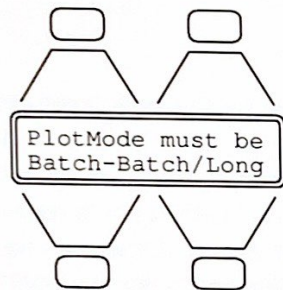
CPGL NOTE

To produce a Long plot, an FR command must precede each frame or plot file. A typical sequence would be:

Plot setup
Plot data
FR command
Plot data
FR command
Plot data
FR command
Etc.

ROLL FEED REPLOT**(OPTIONAL MEMORY EXPANSION CARTRIDGE INSTALLED)**

The replot feature of the Artisan Plus 1026 allows the plotting and replotting of multiple copies of a plot. The number of copies is set using the numeric/direction keys by entering a number up to 99. The number 0 means "repeat indefinitely". The number 1 causes a replot operation similar to the cut-sheet operation described above. The plotter can be in any of the available plot modes for a single replot. To obtain more than one replot, the plot mode must be set to Batch or Batch/Long plot mode. If the plotter is not in Batch or Batch/Long plot mode and a number other than one is entered, the following is displayed:



This message is displayed for two seconds and then the display returns to page 1 of the main menu.

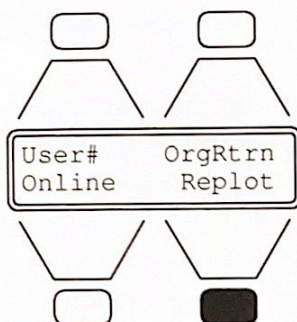
Before using this feature the plotter should have the correct host setup for the plot data; the plot mode should be set to Batch or Batch/Long; and the outline drawing, pen grouping and media stabilization time should be set as desired. Sufficient roll media should be on the supply roll, if possible, to accommodate the number of copies requested. If the plotter detects the end of the roll while advancing a page, the current plot mode is terminated. If this occurs, the replot must be restarted and the number of copies remaining must be re-entered.

If plot data is in the data buffer, the replot feature backs up and plots this data. If this plot is not wanted, clear the buffer using the procedure given on page 4-12, Interrupting a Plot.

To use this feature, refer to the following procedure.

ROLL FEED REPLOT

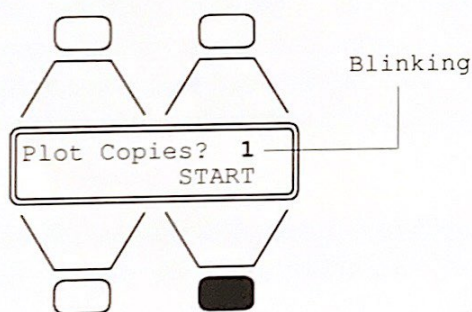
1. Display page 1 of the main menu.



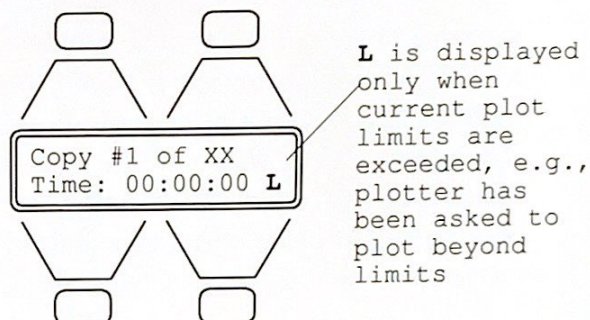
NOTE

If the data in the data buffer cannot be replotted because of a data buffer overflow, the message "Replot buffer overflow" is displayed for two seconds and the display returns to page 1 of the main menu.

2. Press the Replot soft key. The following is displayed:



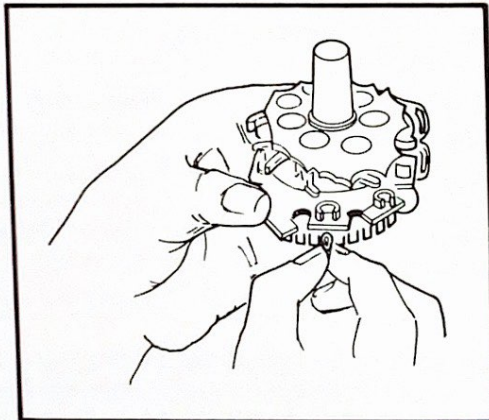
3. Enter the desired number of copies using the numeric/direction keys and press the START soft key. The following is displayed:



4. The plotter starts replotting the plot in the data buffer, or if the data buffer is empty, the plotter is ready to receive the plot data from the host computer. If the number of copies requested is zero (repeat indefinitely), the Replot number returns to zero after the 99th copy and the plotter continues.

If the plot is longer than one page (Long plot), and the plot mode is set to Batch/Long, the entire plot is drawn using frame registration. A page of media is advanced between copies. If cutline drawing is enabled, a pair of cutlines are drawn between each copy.

CHAPTER SIX PENS AND MEDIA



CHAPTER 6

PENS AND MEDIA

INTRODUCTION

This chapter describes the pens and media recommended specifically for use with the Artisan Plus plotter. Included are tables providing the following information:

- Pen types and characteristics
- Media types and characteristics
- Cut-sheet media standards
- Roll media standards
- Pen/media combinations for specific applications
- Recommended pen speed/force for a given pen type

In addition, a procedure is provided at the end of this chapter for changing the turret pen caps.

CAUTION

Do not use double-sided gloss media (clay coat, chrome coat, etc.) on the Artisan Plus series plotters. When using single-sided gloss media (clay coat, chrome coat, etc.), exercise extreme caution to ensure that the gloss or coated side is always up. Failure to observe either of these precautions could result in complete clogging of the grit drum.

CalComp plotter pens and media are designed to provide optimal pen life, plot quality, and plotter performance. For a complete listing of plotter supplies, refer to the following literature that is packed with the plotter.

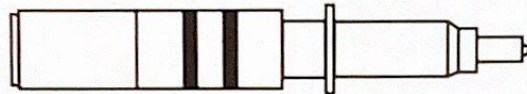
- CalComp Guide to Liquid Inking
Part No. 10300-901-001-2, Order No. M0012-240
- CalComp Pen Plotter Supplies Catalog
Order No. G0266-SUP

PEN TYPES

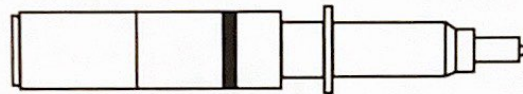
Table 6-1 lists Artisan Plus pen types, line widths, and associated characteristics. The plotter uses the following pen types:

- Disposable liquid ball - **WLB** series
- Disposable plastic tip - **WPP, WFP** series
- Disposable liquid ink - **WL, WT** series
- Refillable (reusable) liquid ink - **7L, 7T** series

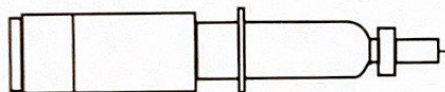
WLB-DISPOSABLE
LIQUID BALL



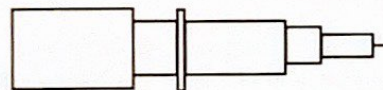
PLASTIC TIP PENS
WPP-MEDIUM TIP
WFP-BROAD TIP



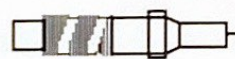
WL-DISPOSABLE
LIQUID INK



WT-DISPOSABLE
LIQUID INK



7L, 7T REFILLABLE
LIQUID INK



The maintenance of the refillable liquid ink pen is described in Chapter 7, Maintenance.

Table 6-1. PEN TYPES

Type	Line Width*			Characteristics
	Size	in	mm	
Liquid Ball WLB	Medium	0.012	0.30	1. Disposable 2. Inexpensive 3. Dense line 4. Good reproduction quality 5. High speed
Plastic Tip WPP	Medium	0.012	0.30	1. Disposable 2. Medium lines 3. Vivid colors 4. Excellent business graphics
Plastic Tip WFP	Broad	0.025	0.64	1. Disposable 2. Broad Lines 3. Vivid Colors 4. Excellent business graphics
Liquid Ink WL	Ex Fine	0.010	0.25	1. Disposable 2. No Maintenance 3. Inexpensive 4. For paper/vellum only
	Fine	0.014	0.35	
	Medium	0.020	0.50	
	Broad	0.028	0.70	
Liquid Ink WT	Ex Fine	0.010	0.20	1. Disposable 2. No maintenance 3. Inexpensive 4. For polyester film only
	Fine	0.014	0.35	
	Medium	0.020	0.50	
	Broad	0.028	0.70	
Liquid Ink 7L series (stainless steel)	Ex Ex Fine	0.010	0.25	1. Reusable 2. General plotting 3. Excellent blue/line/ photoreproduction 4. Long life 5. Paper/vellum only
	Ex Fine	0.011	0.28	
	Fine	0.015	0.38	
	Medium	0.018	0.46	
	Med. Broad	0.022	0.56	
	Broad	0.027	0.69	
7L series 7T series (Tungsten)	Ex Fine	0.010	0.25	1. Reusable 2. General plotting 3. Excellent blue/line/ photoreproduction 4. Long life 5. Polyester film only
	Ex Fine	0.011	0.28	
	Fine	0.015	0.38	
	Medium	0.018	0.46	
	Med. Broad	0.022	0.56	
	Broad	0.027	0.69	

MEDIA TYPES

MEDIA TYPES

Table 6-2 lists Artisan Plus media types and associated characteristics; Table 6-3 lists the cut-sheet standards; and Table 6-4 lists the roll media standards. The following media types can be used:

- Translucent
- 22-pound Bond
- Premium Vellum
- Vellum 1411
- Polyester film (double matte)
- Gloss *
- ClearPlot *

* Cut-sheet only

Read the next section, "Roll Media Stabilization", if you are using an Artisan Plus 1026 plotter. This section explains the relationship between environmental conditions and media stability, and should help you to determine the media type that best meets your needs.

ROLL MEDIA STABILIZATION

Media stabilization time is a variable. This variability occurs from the interaction of the media and the atmosphere around the media at the time of use. Adjustments to the media stabilization time may need to be made until the user is familiar with the properties of each media type and the plotter environment. Final plots require more stabilization than check plots. Plots requiring exact stabilization should always be done on polyester film.

Relative humidity (RH) is the biggest single factor affecting plot tracking and accuracy when performing long plots on roll media. Media, which is made of wood or cotton fibers, is not a stable material. It is born in a wet process (mixing pulp and water) and is affected by the RH of its environment. Variations in humidity and temperature cause paper to expand or contract due to moisture in the air. Changes in humidity and temperature affect stability of the media and accuracy of the plotted drawings. A general rule to follow is that paper changes less than one percent in a plotting environment of 40 to 60 percent RH and a temperature of 65 to 75 degrees Fahrenheit.

CalComp roll media is packaged at between 45 and 50 percent RH. If the plotter environment RH is between 45 and 50 percent, an unrolled frame of media generally stabilizes in 15 minutes or less. If tracking problems exist during long plots, check the RH in the plotter environment. If the RH is not between 45 and 50 percent, humidity control or media stabilization is required. If RH is not between 40 and 60 percent, humidity control is mandatory. Consult your local heating and air conditioning expert for recommendations.

Polyester film is a crystalline material. Variations in humidity and temperature have very little effect on its stability and permanence. Polyester film offers

the highest stability and accuracy for plotting. Film is the best choice for drawings requiring precision and long-term storage.

Table 6-2. MEDIA TYPES

Type	Characteristics
Translucent	Often called lightweight 15-pound bond, both economical and easy to use. Because of its translucency, this paper is suitable for good blue-line reproduction.
22-pound Bond	An economical paper for preliminary drawings and check-plots. Because of its opaqueness and high contrast, it is excellent for photoreproductions.
Premium Vellum	Top of the line extra smooth 20-pound weight with superior handling characteristics and resistance to tearing and creasing. Good erasability; high contrast; suitable for long-term storage.
Vellum 1411	Resin impregnated, designed to have the best combination of stability, translucency, and ink acceptance. Provides excellent blue-line reproductions.
Polyester Film 3D DM (3 mil)	Double matte for plotting on either side. Possesses very high dimensional stability regardless of changes in temperature and humidity. This film is recommended for close tolerance high-accuracy applications, such as overlays and master archival copies. It has excellent translucency and does not tear, crack, peel, or fade under normal use.
Gloss	Coated paper having excellent smoothness and high specular reflectance for bold and vivid colors for presentation graphics.
ClearPlot ©	A transparent plastic material used for creating business graphics transparencies, available only from CalComp.

Table 6-3. CUT-SHEET STANDARDS

ANSI			ISO			ARCH		
	Inches	Millimeters		Inches	Millimeters		Inches	Millimeters
A	8.5x11	216x279	A4	8.27x11.69	210x297	1	9x12	229x305
B	11x17	279x432	A3	11.69x16.54	279x420	2	12x18	305x457
C	17x22	432x559	A2	16.54x23.35	420x594	3	18x24	457x610
D	22x34	559x864	A1	23.35x33.1	594x841	4	24x36	610x914
E	34x44	864x1118	A0	33.11x46.81	841x1189	5	30x42	776x1067
						6	36x48	914x219

ANSI = American National Standards Institute for Engineering Drawings

ISO = International Standards Organization for Engineering Drawings

ARCH = Architectural Standards

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Table 6-4. ROLL MEDIA STANDARDS

MEDIA TYPE	WIDTH		LENGTH	
	Inches	Millimeters	Feet	Meters
Nonpunched and nonperforated				
Polyester film	36	9144	60	18.29
All other roll media Includes: Translucent (15-pound), Bond (22-pound), Vellum 1411, Premium Vellum	36	9144	120	36.58

PENS/MEDIA COMBINATIONS

PENS/MEDIA COMBINATIONS

Table 6-5 lists the pen/media combinations for specific applications. The applications are listed at the top of the table and the pens/media are listed at the left side of the table. Recommended pen/media combinations are indicated by an "X." For specific details on pens and media, refer to Tables 6-1 or 6-2.

Table 6-5. PENS/MEDIA COMBINATIONS

Application Pen/Media	Checkplots, final plots, good repro- duction quality	Final graphics, overhead transparencies, notebook insertions	Business graphics, pie charts, borders	Final drawings paper, vellum	Final drawings polyester film	Blueline or photorepro- duction, paper,vellum	Blueline or photorepro- duction, poly- ester film
WLB (Liquid ball)	X						
WPP (Plastic tip)		X	X				
WFP Plastic tip)		X	X				
WL (Liquid ink, disposable)				X		X	
WT (Liquid ink, disposable)					X		X
7L (Stainless steel)				X		X	
7T (Tungsten)					X		X
Translucent	X					X	
Gloss		X	X				
22-pound bond		X					
Vellum 1411				X		X	
Premium vellum				X		X	
Polyester film					X		X
ClearPlot		X	X				

PENS SPEED/FORCE

Table 6-6 lists the pen speed and pen force parameters for each pen type. The default parameters are listed with the recommended minimum and maximum limits. To draw the highest quality plot, set the pen speed at the lower end of the range. To draw many plots of lesser quality, set the pen speed to the higher end of the range. To change speed and force parameters, refer to Chapter 4.

Table 6-6. PEN SPEED/FORCE

Pen Type	Pen Speed at 45 Degrees		Pen Force		
	Default	Max *	Default	Min	Max *
Plastic Tip WPP, WFP	6 in/s 15 cm/s	10 in/s 25 cm/s	03	01	05
Liquid Ball WLB	42 in/s 107 cm/s	42 in/s 107 cm/s	10	01	15
Liquid Ink WL, WT 7L, 7T	8 in/s 20 cm/s	10 in/s 25 cm/s	02	01	05

in/s = inches per second

cm/s = centimeters per second

* = recommended maximums

TURRET PEN CAPS

The plotter is shipped with eight pen caps installed in the pen turret. Pen caps prevent the ink in the pens from drying out or evaporating when the plotter is not in use.

There are two types of pen caps; each type of cap is identified by its color:

- Beige - for plastic and liquid ball pens
- Black - for liquid ink pens

If liquid ink pens are to be loaded into the turret, they must have the black pen caps installed to operate properly. Black pen caps are included with the accessories kit.

To load the pen caps or change pen caps, refer to Figure 6-1 and proceed as follows:

1. If necessary, remove existing pen caps from pen cap holder.
2. Install a new pen cap by squeezing the cap between thumb and forefinger.
3. Slide the cap into opening in the pen cap holder.
4. Ensure the cap holder brackets fit snugly into the pen cap groove.

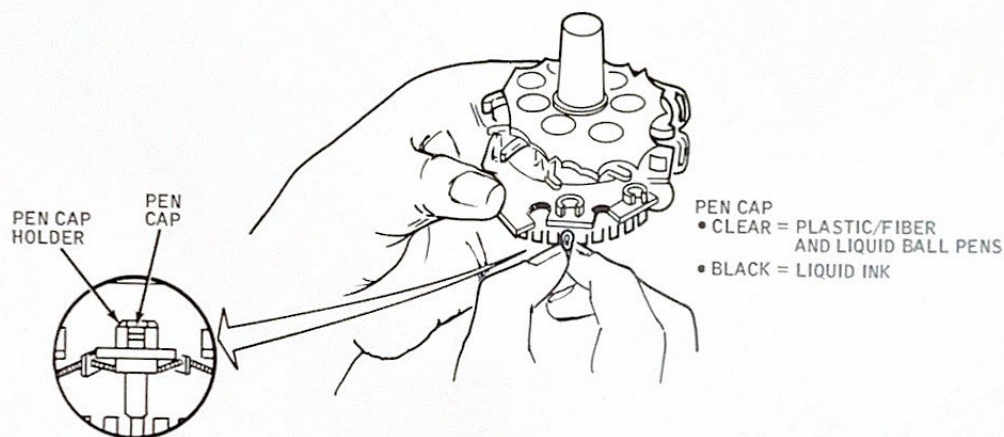
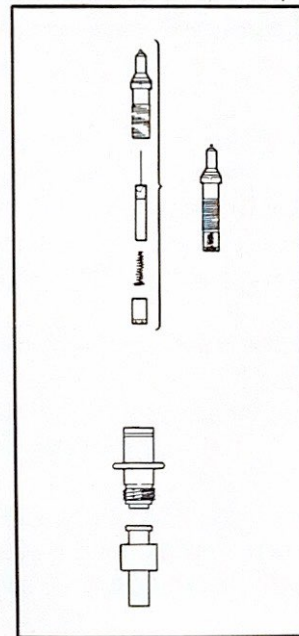


Figure 6-1. Turret Pen Caps

CHAPTER SEVEN MAINTENANCE



CHAPTER 7

MAINTENANCE

INTRODUCTION

This chapter includes procedures for cleaning the plotter and procedures for the care and handling of refillable liquid ink pens. A procedure for changing the 1026 media cutter blade is also included at the end of this chapter.

CLEANING THE PLOTTER

Plotter maintenance is limited to a thorough cleaning. All other maintenance must be performed by qualified service personnel. Periodically clean the plotter as follows:

1. Wipe the plotter surface with a lint-free cloth dampened very lightly with warm water. Do not use abrasive cleaners, cleaning solvents or strong detergents. They can damage the surface of the plotter and its moving parts.
2. Wipe dust and dirt from the cover.
3. Use a lightly moistened cloth to clean the platen and pinch rollers.
4. Remove the pen caps from the turret and clean them with a cotton swab and water; replace any worn or cracked pen caps.

CLEANING THE GRIT DRUM

CLEANING THE GRIT DRUM

1. With pinch roller down, attach a 6-inch length of tape to the grit drum in front of the pinch roller. Suggested tape is 3M 6200 permanent mending tape - a similar tape may work fine. However, masking tape does not work well.

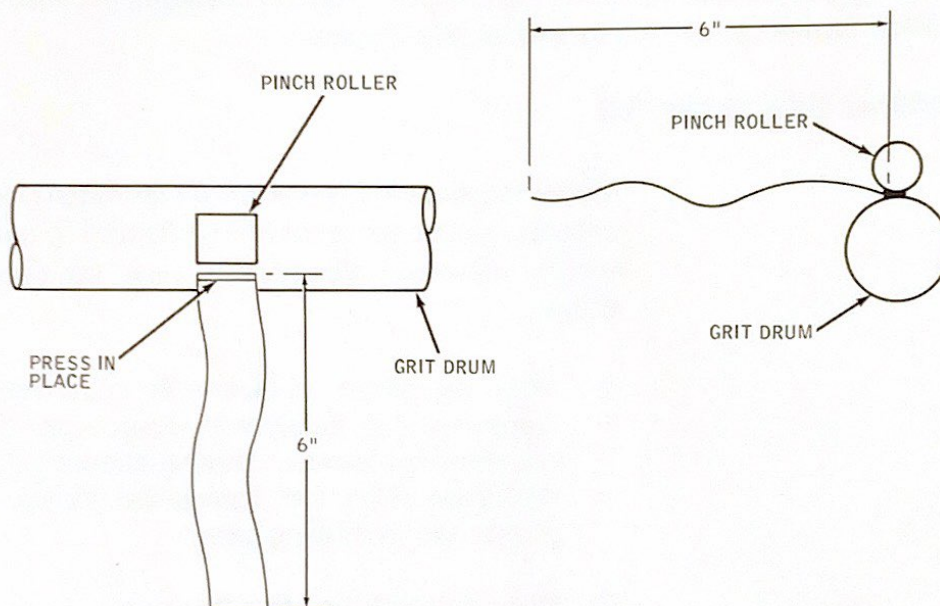


Figure 7-1. Tape Placement For Grit Drum Cleaning

2. Manually roll the grit drum so that the tape goes under the pinch roll, while holding the free end of the tape up so it does not stick to the platen.

CLEANING THE GRIT DRUM

3. Continue to roll the grit drum until it has turned approximately 1-1/4 turns (enough to stick tape to the entire drum surface).
4. Reverse the direction of the grit drum rotation and remove tape as it emerges from under the pinch roller.
5. Repeat as necessary.

MAINTENANCE OF REFILLABLE LIQUID INK PENS

This section provides information on the care and handling of refillable liquid ink pens. Careful cleaning, storing, and filling of the pens are important factors in creating good drawings.

General Procedures

- Pen Caps - Built-up ink and paper dust in the pen caps can affect the plot quality. Pen caps should be inspected periodically and cleaned or replaced as necessary.
- Pen Tips - Pen tips should be inspected periodically during use and if necessary, cleaned with a lint-free cloth moistened in warm water.
- Storage - All refillable liquid ink pens should be stored in the supply kit or a container that is protected against moisture or extreme temperature. Liquid ink pens can be left in the turret for a maximum of 24 hours.

NOTE

If the pens are left in the turret beyond 24 hours, the pens must be disassembled and cleaned.

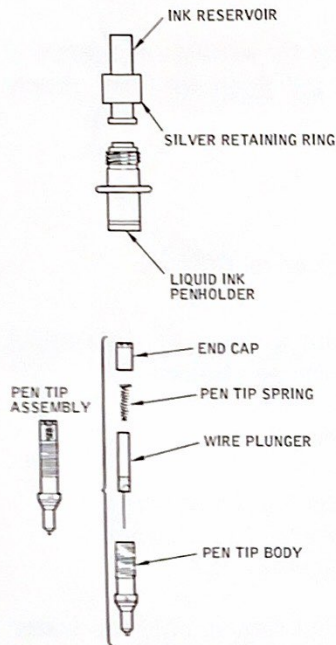
MAINTENANCE OF REFILLABLE LIQUID INK PENS

Assembling a Liquid Ink Pen for Use

Before assembling a liquid ink pen, always ensure that the parts are clean, especially the inside of the pen tip.

NOTE

The ink on the tip of the pen dries quickly if the pen is not used and left uncapped.



1. Select the appropriate pen tip assembly.
2. Shake the pen tip assembly vigorously to check the freedom of movement of the wire plunger.
3. Screw the pen tip assembly into the pen holder, but do not tighten.
4. Place the concentricity wrench over the pen tip and tighten the tip, finger tight only.
5. Select the appropriate ink reservoir.
6. Determine the color of the liquid ink to be used.
7. Pour the ink into the ink reservoir.
8. While still holding the ink reservoir upside down, press the pen holder into the reservoir and tighten the silver retaining ring.

NOTE

Ensure that the silver retaining ring is not smudged or scratched. The plotter senses this ring to set optimum parameters for liquid ink plotting.

MAINTENANCE OF REFILLABLE LIQUID INK PENS

9. To start ink flow to the pen tip, shake assembly downward several times. The motion should be as if you were throwing a dart. Be sure and point away from yourself and others (towards a piece of paper).
10. Prime the pen manually by writing on a piece of plotting media. If the ink does not flow, repeat step 9.

Clean the Entire Pen

Refer to the figure and proceed as follows:

1. Loosen the silver retaining ring and disconnect the ink reservoir from the pen holder.

CAUTION

Do not clean the silver retaining ring in a ultrasonic cleaner. The cleaner may damage the retaining ring.

2. Clean the silver retaining ring in cold tap water and wipe dry with a lint-free cotton cloth.
3. Unscrew the pen tip assembly from the pen holder.
4. Rinse the pen holder and ink reservoir in warm water to remove all traces of ink. Pay special attention to the internal threads of the pen holder. Dried ink can flake off when a tip is inserted and cause a blockage.

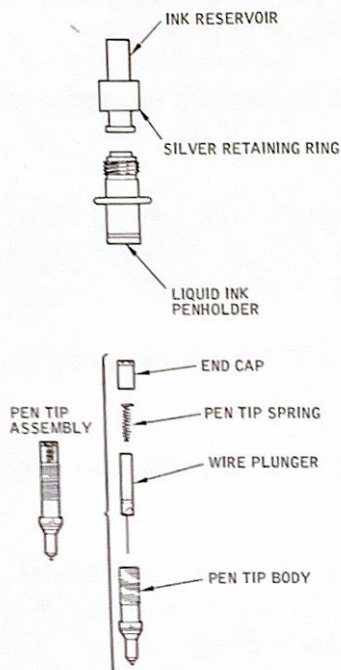
MAINTENANCE OF REFILLABLE LIQUID INK PENS

5. Remove the end cap from the pen tip body by pulling on the end cap.

CAUTION

Do not force the wire plunger from the pen tip body. If the wire plunger does not slide easily, immerse the whole assembly in pen cleaner until the wire plunger is free.

If more than one pen tip assembly is being cleaned, do not intermix the parts, even if the pen points are the same size.

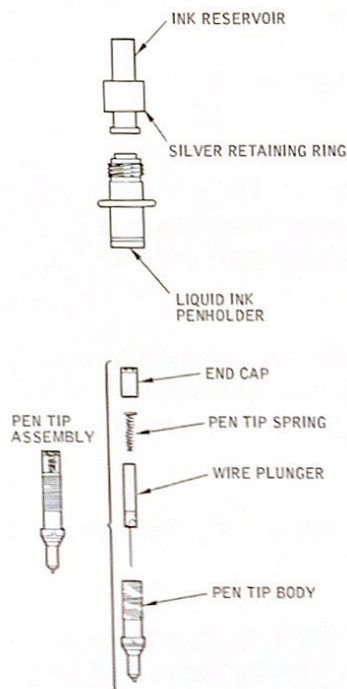


6. Remove the pen tip spring and wire plunger from the pen tip body.
7. Place the end cap, pen tip spring, wire plunger, and pen tip body in a cleaning basket (supplied with the pen accessory kit).
8. Place the basket in the ultrasonic cleaner or in a jar of pen cleaner. Ultrasonic Cleaner, part number 5005-202-000, is available from CalComp.
9. Ensure that all traces of ink are removed from the parts and vent hole.
10. Remove the cleaning basket from the pen cleaner and rinse the parts in warm flowing water.
11. Blow dry all parts.

CAUTION

Do not leave the pen assembly parts in an ultrasonic cleaning solution for more than 24 hours.

MAINTENANCE OF REFILLABLE LIQUID INK PENS



12. Inspect the parts for any damage, such as a bent wire plunger or a worn pen tip. It is very useful to have a CalComp pen tip microscope (IC number 536250-4) for this purpose. If the pen tip is worn or bent, replace the pen tip assembly.

13. Assemble the parts of the pen tip assembly as follows:

- Insert the wire plunger in the pen tip body, but do not force it. The wire plunger slides into position under its own weight.
- Insert the large end of the pen tip spring in the end cap.
- Press the pen tip body and the end cap together.
- Connect the ink reservoir and pen holder loosely (until ready for use) by partially engaging the silver retaining ring.

1026 MEDIA CUTTER BLADE CHANGING PROCEDURE

WARNING

Exercise caution when handling the blade or blade guide assembly. The blade is very sharp and the cutting edges are exposed when the media cutter is disassembled.

Tools Required:

Small Phillips screwdriver
Hex wrench, 3/32 inch

Equipment Required:

Blade, CalComp part number 630270-7

The cutter assembly is retained in its track by a rear guide and the physical presence of the endbell assemblies at the left and right ends of the cutter track.

To remove the cutter assembly from the plotter and change the blade, proceed as follows:

1. Remove the retaining screw from the bottom of the control panel side endbell. (See Figure 7-2). Remove the endbell.

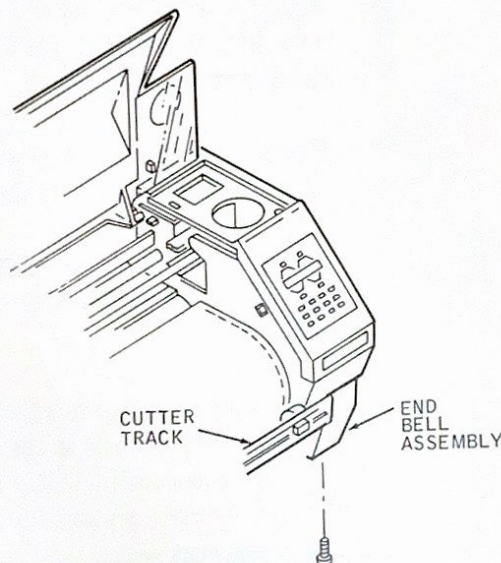


Figure 7-2. Plotter End Bell

1026 MEDIA CUTTER BLADE CHANGING PROCEDURE

2. Slide the cutter assembly from the plotter.

NOTE

Refer to Figure 7-3 during the following procedure.

3. Remove the two Phillips head screws and nuts from the cutter assembly covers while holding the cutter covers together.
4. Place the cutter assembly on its side and carefully lift one cover from the cutter assembly.

WARNING

Exercise caution when handling the blade or blade guide assembly. The blade is very sharp and the cutting edges are exposed when the media cutter is disassembled.

5. Remove the two wheels above the cutter blade and lift the blade guide assembly out of the remaining cutter cover.
6. Remove the hex screw from the blade guide assembly and remove the blade.
7. Replace the blade, assemble the media cutter and install it in the plotter by reversing steps 1 through 6.

DO NOT overtighten the hex screw when retaining the cutter blade in the guide. The guide should be loose enough to flop from side to side on the blade. Be certain that the brass insert on the guide is at the top when putting the cutter assembly in the track.

1026 MEDIA CUTTER BLADE CHANGING PROCEDURE

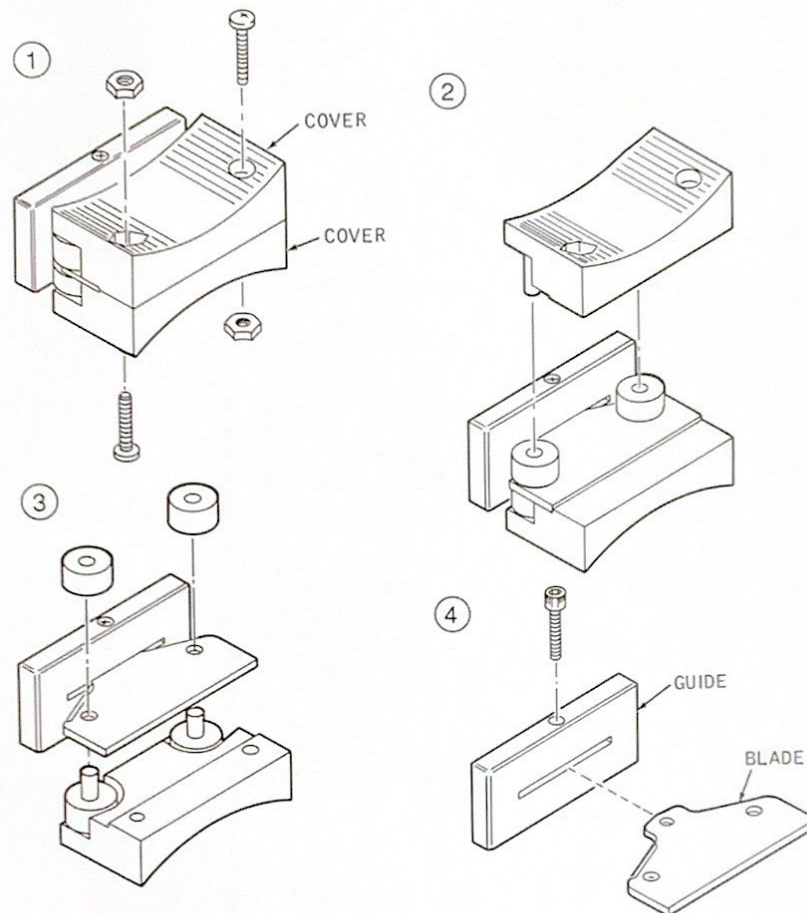
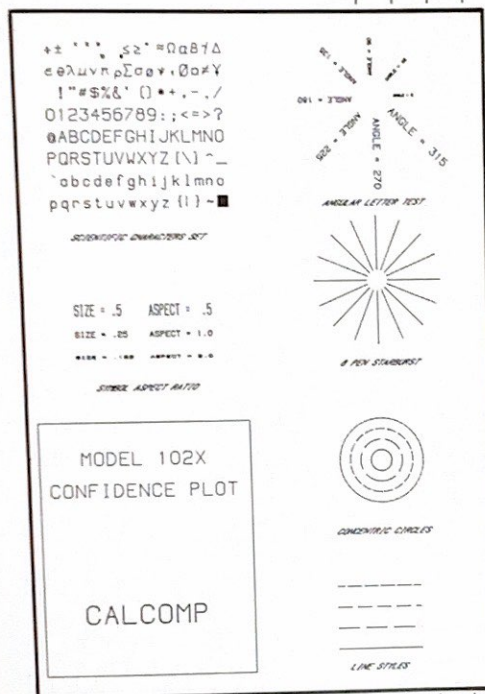


Figure 7-3. Cutter Assembly



CHAPTER 8

PROBLEM SOLVING

INTRODUCTION

This chapter serves as a guide to help correct some of the most common day-to-day problems. The chapter is divided into the following areas:

- Non-operational solutions
- Operational solutions
- Plot quality solutions
- Supplies solutions
- Host communications solutions
- Firmware solutions
- Diagnostic information

NON-OPERATIONAL SOLUTIONS

NON-OPERATIONAL SOLUTIONS

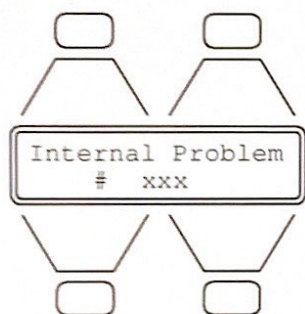
Plotter Will Not Operate

1. Does the plotter turn on?

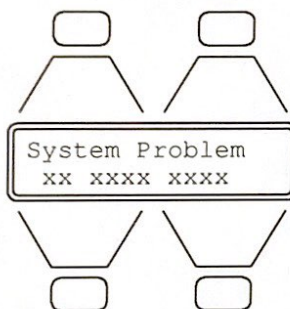
Yes - Go to step 2.

No - Go to step 4.

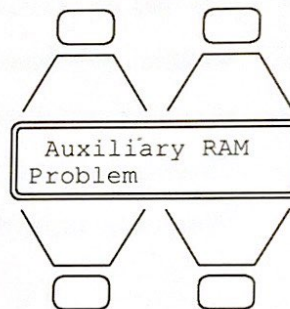
2. Are any of the following error messages displayed?



Component failure -
record number and
contact a CalComp
Sales and Support
Office listed in
Appendix D



Firmware error -
record number and
contact a CalComp
Sales and Support
Office listed in
Appendix D



Go to step 3

Yes - Ensure the voltage select switch is set properly (1023/1025 only). If problem persists, perform procedure specified.

No - Contact a CalComp Sales and Support Office listed in Appendix D.

NON-OPERATIONAL SOLUTIONS

3. Power-down the plotter. Remove the memory expansion cartridge and power-up. Does problem persist?

Yes - Contact a CalComp Service Representative.

No - Memory expansion cartridge is bad. Contact a CalComp Sales and Support Office listed in Appendix D.

4. Check the following items:

- Voltage select switch is set for wall outlet voltage level (1023/1025 only).
- Power cord is properly plugged into plotter and wall outlet.
- Wall outlet voltage is proper level (1023/1025 only).
- If the plotter still does not turn on, contact a CalComp Sales and Support Office listed in Appendix D.

OPERATIONAL SOLUTIONS

OPERATIONAL SOLUTIONS

These are problems that can occur as a result of operation and are usually caused by some mechanical problem or failure of some operation. The error message is presented first, followed by a recommended action. If the recommended action does not produce a solution, contact a CalComp Sales and Support Office listed in Appendix D.

Check turret.
Press any key.

The plotter cannot pick up or replace a pen from the turret. The turret may be jammed. Remove the turret and check for obstructions.

Install turret.
Press any key.

The turret has been removed or has moved out of position. Reinstall the turret. Ensure it is properly installed.

Remove a pen.
Press any key.

There are too many pens in the plotter. The plotter senses a pen in the pen carriage and eight pens in the turret.

Install a pen.
Press any key.

The plotter does not sense a pen in the pen carriage or the turret. Remove the turret and install at least one pen. Replace the turret.

Please check
media size.

During the media load sequence, the plotter sensed the media was not within the size limits. Remove the media and verify that it is within the size range specified for the plotter. Replace media and restart the media sizing sequence.

Please lower
cover.

After the plotter was placed online or during replot or confidence plot, the cover was raised. Lower cover and follow prompt.

Please check
Carriage RESET

An obstruction to the carriage or drum, or a plotter malfunction has been sensed. Remove the obstruction and press the RESET soft key to continue.

Please check
Drum RESET

Entered value
Out of Range

During a manual keyboard entry, the plotter has detected a numeric error. Check entered value, re-enter, or ignore message.

Warning - Beyond
pen range

During a manual entry of pen parameters, a value exceeding the range of pen parameters has been entered. Check entered value, re-enter, or ignore message.

OPERATIONAL SOLUTIONS

These error messages are **unique to the Model 1026**.

Please load new
roll of media

During a media advance operation, the plotter has detected the end of roll mark. Raise the pinch rollers and install a new roll of media.

Check front roll
Press any key.

During a media advance operation, the media has not moved in the first 15 seconds. Check that the media is taped to the take-up core. Check that the take-up core area is free of obstructions.

Check pen #8
Press any key.

During a frame advance operation, the frame mark sensor detects a writing error. Check, and if necessary, install a new black liquid ink pen in turret position 8. A CalComp WL4 or WT4 is required to write the frame registration marks with the current characteristics.

Frame mark error
Continue Abort

The frame mark sensor is unable to read the frame marks. Verify that the pen in turret position 8 is a black liquid ink pen. A CalComp WL4 or WT4 is required to write the frame registration marks with the current characteristics.

Not allowed for
cut sheet media

The plotter has detected an illegal page advance attempt. Change PlotMode to appropriate type (Batch Plot, Long Plot, or Batch/Long).

Not allowed for
this plot mode

The plotter has detected an illegal frame advance attempt. Change PlotMode to Long Plot or Batch/Long.

Please cut plot
Continue

During a Single Plot media sizing operation, the plotter did not sense the edge of the media. Cut plot and continue.

Abort long plot?
Yes No

The plotter is requesting confirmation because the operator initiated a page advance in Long Plot before an end of plot command was received. Check and confirm.

Advance Page?
Yes No

The plotter is requesting instructions regarding media advance following a plot abort using the Abort soft key. Confirm operation and press the appropriate key.

Plot too big for
buffer Continue

After finishing the first frame of a Batch/Long media type plot, the plotter has detected that the plot data is larger than the capacity of the optional memory expansion cartridge. Perform a manual frame advance (Frame Adv), continue Online (Continue), and resend the plot data from the host. Repeat this operation for each frame until the plot is finished. This error message appears for each frame except the last frame.

"FR"cmd received
Check plot mode

The plotter is in the cut sheet or single plot mode and the host computer is requesting a frame advance. Press the EXIT key, and using the NEXT key, check and/or change the Plot Mode as required. Load new media and resend the plot as necessary.

PLOT QUALITY SOLUTIONS

Use this section if the line quality of the plots is not satisfactory.

1. Are the correct pens and media being used as recommended in Chapter 6?

Yes - Go to step 2.

No - Use correct pens and media combinations.

2. Is paper movement restricted?

Yes - Move the plotter to an open area where paper movement is not obstructed. Run the plot again. If the problem persists, go to step 3.

No - Go to step 3.

3. Are lines of uneven quality?

Yes - Remove the turret and examine the pens. Replace any damaged or dried-out pens. Run the plot again. If the problem persists, go to step 4.

No - Go to step 4.

4. Are lines drawn with uneven widths or are they smeared?

Yes - Reducing pen speed can improve line quality. Perform pen parameter set-up in accordance with Chapter 4. Run the plot again. If the problem persists, go to step 5.

No - Go to step 5.

5. Does the ink flake off the media?

Yes - If the media has been treated with a cleaning powder or other compound, the ink may be adhering to this powder. Load new media and run the plot again.

No - Go to step 6.

6. Are you using CalComp-supplied media and pens?

Yes - If the plot quality is still not satisfactory, refer to Chapter 6 and ensure that the correct pens and media are being used for the application being performed.

No - CalComp media and pens are designed to work with the plotter to produce sharp, clear lines.

SUPPLIES SOLUTIONS

Use this section if pens are not lasting as long as you would expect, or if media tears during plotting.

Pens Dry in the Turret

Before proceeding with this procedure, it is important to note that in dry climates, ink dries more rapidly than in humid climates. In dry climates, more care must be taken to cap pens.

1. Are pens capped after use?

Yes - Go to step 2.

No - Pens that remain in the turret over long periods of time tend to dry out. Remove plastic tip pens from the turret and replace the caps if the pen and caps are not going to be used for several days. Remove liquid ink pens and cap them if they are not going to be used in the next 12 hours.

2. Remove the turret and examine the rubber pen caps. Are any of the pen caps damaged, worn or loose?

Yes - Press loose pen caps into place. If any pen caps are damaged or missing, replace them with new caps.

No - Go to step 3.

3. Are refillable liquid ink pens being used?

Yes - Refer to Chapter 7 and follow maintenance instructions carefully.

No - Ensure stored pens have not exceeded their shelf life.

Media Tears During Plotting

1. Is a recommended pen and media combination being used?

Yes - Go to step 2.

No - Refer to Chapter 6, Pens and Media.

2. Are the edges of the media curled?

Yes - Load the media with curled edges down. Run the plot again.

No - Go to step 3.

3. Remove the turret and examine the pens. Are pen tips damaged or assembled incorrectly?

Yes - Replace any damaged pens and/or assemble pens correctly.

No - Go to step 4.

4. Is the plot drawn with many closely spaced lines?

Yes - Use a stronger plotting media and/or change pen parameters to allow ink time to dry before additional lines are drawn.

No - Ensure high-quality media is being used.

HOST COMMUNICATIONS SOLUTIONS

Host data overrun
error RESET

Host data parity
error RESET

Host check sum
error RESET

Data Framing
error RESET

Bad host command
error RESET

Input buffer
overflow RESET

1. Are any of the messages in the left column displayed?

Yes - Press the RESET soft key. Go to step 2.

No - Go to step 3.

2. Does the problem persist?

Yes - Check the host communications set-up parameters in Chapter 3 and reconfigure the parameters if necessary.

No - May be an intermittent problem.

3. Possible bad RS-232C cable or connection exists between the plotter and host computer. Check cable and connections. Does the problem persist?

Yes - Go to step 4.

No - Possible bad cable or connection.

4. Disconnect the RS-232C cable connection between the plotter and the host computer, and run the plotter confidence plot. Is the confidence plot OK?

Yes - The plotter is OK. Check out the host computer and the applications software.

No - The plotter has a problem. Contact a Cal-Comp Sales and Support Office listed in Appendix D.

FIRMWARE SOLUTIONS

Bad EEROM data
Re-initializing.

Using default
1020 parameters.

Bad user number.
Using user #1

Using default
user parameters.

EEROM write
error Continue

The displays in the left column are Electrically Erasable Read-Only Memory (EEROM) Warnings.

Any of these messages causes the EEROM to be initialized. If this occurs, all set-up parameters are reset to the factory defaults. Any changes that were made to the set-up parameters are lost and must be re-entered. This includes the following:

- Host communication parameters (Chapter 3)
- Pen parameters (Chapter 4)
- Hardware scale factor (listed below)

This procedure allows verification and calibration of the hardware scale factors, if necessary.

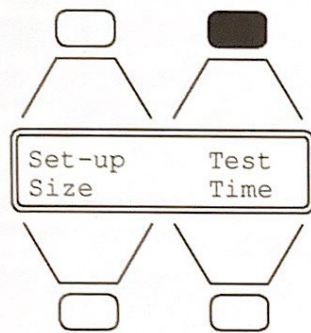
Scale Factor

To continue operations, proceed as follows:

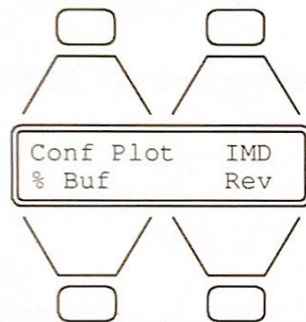
1. Press the lower right soft key. The plotter goes through a power-up initialization sequence for approximately 30 seconds.
2. Enter the host communications parameters in accordance with Chapter 3.
3. Enter the pen parameters in accordance with Chapter 4.

FIRMWARE SOLUTIONS

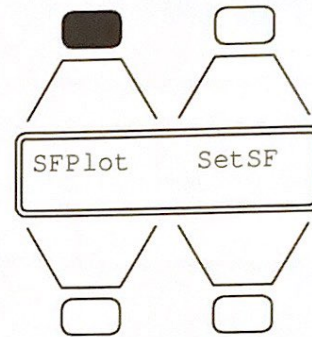
4. Verify or recalibrate the hardware scale factor as follows:
 - a. Load a D-size sheet of polyester film and an extra fine liquid ink pen.
 - b. Display page 3 of the main menu.



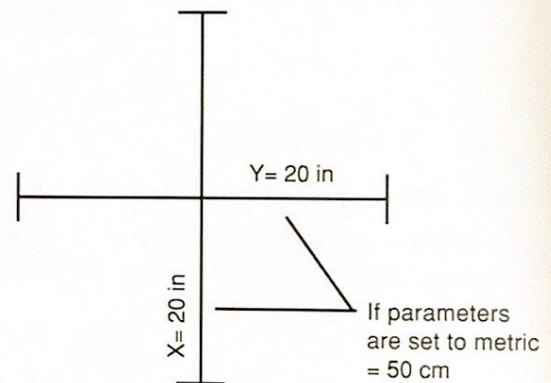
- c. Press the Test soft key. The following is displayed:



- d. Press the NEXT key. The following is displayed:

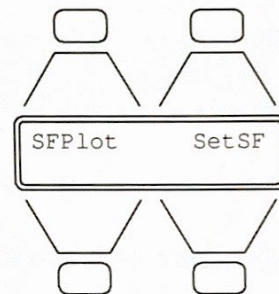
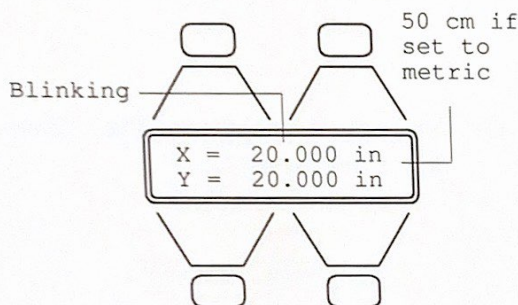


- e. Press the SF Plot soft key. The plotter draws the following:



- f. Remove the drawing and measure the x and y axes.

- g. If either axis differs from the 20 inches or 50 centimeters, the dimensions can be re-entered. The plotter accepts values from 19.020 to 20.080 inches or 49.800 to 50.800 centimeters.
- h. To enter new dimensions, perform steps i through m. If the dimensions are correct, proceed to step m.
- i. Load a new sheet of media and perform steps b through d.
- j. Press the Set SF soft key, the following is displayed:
- k. Pressing the top soft keys allows access to the x-axis field. Pressing the bottom soft keys allows access to the y-axis field.
- l. Use the numeric/axis direction keys to enter the measured values from step f for either or both axes that require correction.
- m. Press the EXIT key. The following is displayed:



The new hardware scale factors are now saved.

DIAGNOSTIC INFORMATION

DIAGNOSTIC INFORMATION

The following procedures can be used if diagnostic information is requested during a service call. There are three types of diagnostic information that can be obtained from these procedures:

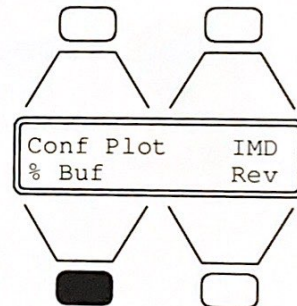
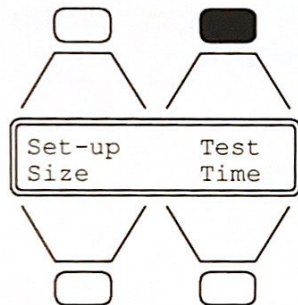
- Percent of Buffer Usage
- Input Monitor Dump (IMD)
- Firmware Revision Level

Percent of Buffer Usage

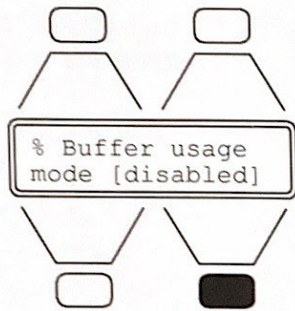
This feature allows displaying the percentage of the input buffer that is being used to hold plot data during the Online mode. This feature also displays the percentage of the sorted vector memory being used to hold plot data for the plot manager.

To use this feature, proceed as follows:

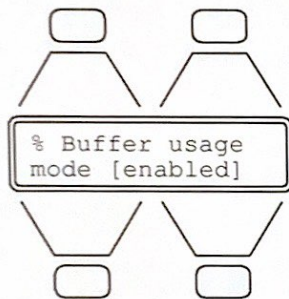
1. Display page 3 of the main menu.
2. Press the Test soft key. The following is displayed:



3. Press the % Buf soft key. The following is displayed:

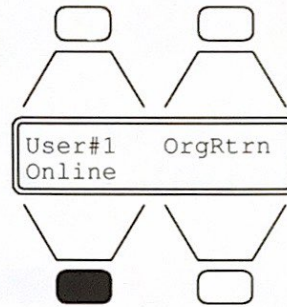


4. Press the [disabled] soft key. The following is displayed:

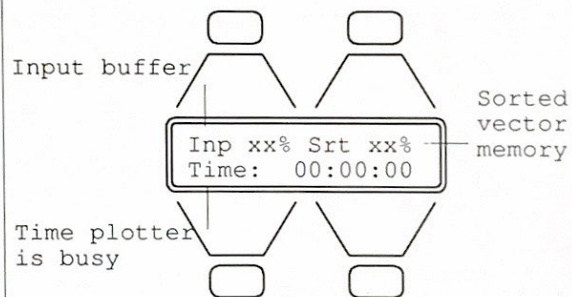


This enables the buffer for display.

5. Press the EXIT key three times. The following is displayed:



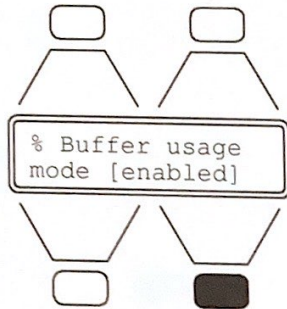
6. Press the Online soft key. The following is displayed:



7. Run the plot from the host computer. The display shows the percentage of the input buffer that is used and the percentage of sorted vector memory used.

DIAGNOSTIC INFORMATION

8. Press the EXIT key to exit this option. The following is displayed:



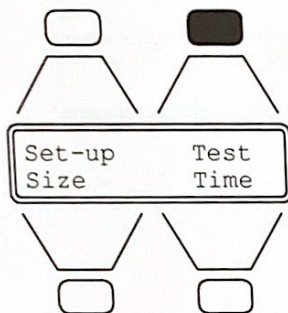
9. Press the [enabled] soft key. The display indicates [disabled]. This disables this option.

Input Monitor Dump (IMD)

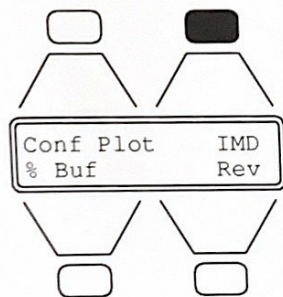
This feature is useful for printing the host communications set-up parameters and the plot data. The plot data is printed in hex and ASCII format and may occupy more than one sheet, depending upon the amount of plot data.

To use this feature, proceed as follows:

1. Display page 3 of the main menu.



2. Press the Test soft key. The following is displayed:



3. Press the IMD soft key. The following occurs:

- a. The plotter prints the host communications parameters for the current user number.
- b. Plot data is sent from the host. The plotter prints the data.
4. If it is necessary to print more than one page of plot data, the following is scrolled on the display:

Please load new media, then press continue.

5. At this time, the pinch rollers can be raised and the existing media replaced with a new sheet (subsequent page).
6. Press the Continue soft key to continue the IMD dump.
7. The media is sized and the plotter continues printing IMD data. This process continues, until the data is all printed or the IMD is aborted.

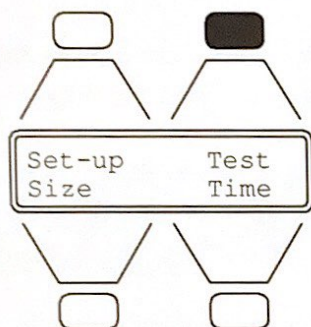
DIAGNOSTIC INFORMATION

Firmware Revision Level

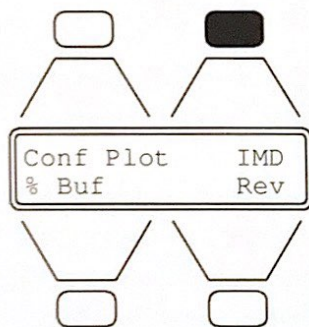
This feature displays the revision level of the firmware residing in the plotter.

To use this feature, proceed as follows:

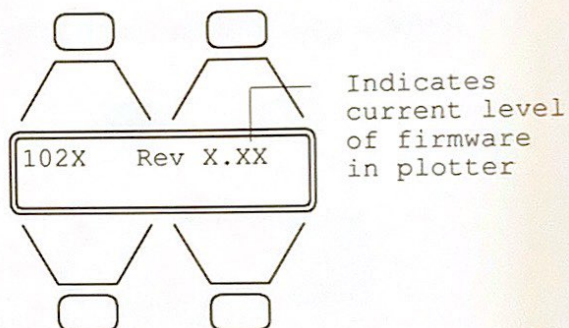
1. Display page 3 of the main menu.



2. Press the Test soft key. The following is displayed:



3. Press the Rev soft key. The following is displayed:



4. Press the EXIT key twice to exit this procedure.

[illegible]

APPENDIX A

SPECIFICATIONS

Artisan Plus 1023 and 1025 specifications are listed on pages A-1 — A-4.
 Artisan Plus 1026 specifications are listed on pages A-5 – A-8.

	1023	1025
MEDIA WIDTH:	ANSI A-D ISO A4-A1 Architectural 1-4	ANSI A-E ISO A4-A0 Architectural 1-6
MAX PLOT AREA:	24 x 34.5 in	35.0 x 47.5 in
PLOT MARGINS:*		
Top of Media	1 in/25.4 mm	1 in/25.4 mm
Left and Right Side of Media	0.5 in/12.7 mm	0.6 in/15.24 mm
Bottom of Media	0.5 in/12.7 mm	0.5 in/12.7 mm

*All dimensions are +/- 0.125 in/3.175 mm

PERFORMANCE:

Acceleration:	2.0G (2.8G at 45° diagonal)
Speed:	30 ips/762 mm/s (42 ips/1077 mm/s at 45° diagonal)
Resolution:	0.0005 in/.0125 mm
Repeatability:*	
(single pen)	0.005 in/.127 mm
Accuracy:*	0.1% of the move up to 36 in/914 mm or .010 in/0.254 mm, whichever is greater.

*On double-matte polyester film (3 mil) within a 5° range between 15°C and 32°C.

SPECIFICATIONS

PENS:

Number of pens:	8
Pen Types:	Liquid ball (WLB) .011 to .013 in/.28 to .33 mm Plastic tip (WPP) .012 in/.30 mm Plastic tip (WFP) 0.25 in/.64 mm Disposable liquid ink (WT, WL) .01 in/.25 mm to .028 in/.70 mm Refillable liquid ink (7T, 7L) .01 in/.25 mm to .027 in/.69 mm

Pen Select	1023:	1025:
Time Range:	2.65 to 4.58 seconds	2.90 to 5.45 seconds

	1023	1025
PHYSICAL:		
Width:	37.5 in/952 mm	48.8 in/1239.5 mm
Depth:	21.0 in/533 mm	30.0 in/762 mm
Height:	45.0 in/1143 mm	49.5 in/1257.3 mm
Weight:	80.8 lbs/36.7 kg	105.0 lbs/47.25 kg

POWER REQUIREMENTS:

Voltage:	90 to 132 Vac or 180 to 264 Vac	90 to 132 Vac or 180 to 264 Vac
Frequency:	47 to 63 Hz	47 to 63 Hz
Current:	0.75 to 1.0 amp (90 to 132 Vac) 0.40 to 0.6 amp (180 to 264 Vac)	0.75 to 1.0 amp (90 to 132 Vac) 0.40 to 0.6 amp (180 to 264 Vac)
Peak Watts:	120	120
Avg. Watts:	90	90
BTU/hr.	306	307

A

SPECIFICATIONS

	1023	1025
ENVIRONMENT:		
Noise:	69 dBa (operating) 55 dBa (power-on idle)	66 dBa (operating) 55 dBa (power-on idle)
Temperature		
Storage:	-29°C to 70°C (20°F to 158°F)	-29°C to 70°C (20°F to 158°F)
Operating:*	15°C to 32°C (59°F to 90°F)	15°C to 32°C (59°F to 90°F)
Humidity:*	20 to 60% relative, noncondensing	20 to 60% relative, noncondensing
Altitude:	0 to 8,000 feet	0 to 8,000 feet
EDS Immunity:	25 kV (no component damage)	25 kV (no component damage)

*Practical limits are dependent upon media used.

SPECIFICATIONS

1023 AND 1025 STANDARD EQUIPMENT:

- One Plotter
- One User's Guide
- One Quick Reference Guide
- One RS-232C interface
- One package of two WLB liquid ball pens
- One package of two WL liquid ink pens
- One power cord (8 ft./2.4 m)
- One package of six cut-sheet 23.4 by 33.1 inches A1-600, 22-pound bond paper
- One 8-pen turret

OPTIONAL ACCESSORIES:

- HCBS software
- Reticle
- Additional pen turret
- Premium pen kit (includes reticle)
- RS-232C cable (10 or 25 feet)
- Memory expansion cartridge and ADI driver

SPECIFICATIONS

	1026 Cut Sheet	1026 Roll
MEDIA WIDTH:	ANSI A-E ISO A4-A0 Architectural 1-6	
MAX PLOT AREA:	34.8 x 48.0 in	Single Plot 34.8 x 48 in Batch Plot 34.8 x 48 in Long Plot 34.0 x 240 in*
PLOT MARGINS:**		
Top of Media	1 in/25.4 mm	Single Plot 1.0 in/25.4 mm Batch Plot 1.0 in/25.4 mm Long Plot 1.0 in/25.4 mm
Left /Right Side	0.6 in/15.24 mm	Single Plot 0.6 in/15.24 mm Batch Plot 0.6 in/15.24 mm Long Plot 1.0 in/25.4 mm
Bottom of Media	0.5 in/12.7 mm	Single Plot 0.5 in/12.7 mm Batch Plot 0.5 in/12.7 mm Long Plot 0.5 in/12.7 mm

* Recommended maximum length

** All dimensions are +/- 0.125 in/3.175 mm

SPECIFICATIONS

PERFORMANCE:

Acceleration:	2.0G (2.8G at 45° diagonal)	
Speed:	30 ips/762 mm/s (42 ips/1077 mm/s at 45° diagonal)	
Resolution:	0.0005 in/.0125 mm	
Repeatability:*		
(single pen)	Cut Sheet:	Roll, Long Plot:
	0.005 in/.127 mm	0.015 in/.381 mm
Accuracy:*	0.1% of the move up to 36 in/914 mm or .010 in/0.254 mm, whichever is greater.	

*On double-matte polyester film (3 mil) within a 5° range between 15°C and 32°C.

PENS:

Number of pens:	8
Pen Types:	Liquid ball (WLB) .011 to .013 in/.28 to .33 mm
	Plastic tip (WPP) .012 in/.30 mm
	Plastic tip (WFP) 0.25 in/.64 mm
	Disposable liquid ink (WT, WL) .01 in/.25 mm to .028 in/.70 mm
	Refillable liquid ink (7T, 7L) .01 in/.25 mm to .027 in/.69 mm
Pen Select	
Time Range:	2.90 to 5.45 seconds

PHYSICAL:

Width:	48.8 in/1239.5 mm
Depth:	31.0 in/787.4 mm
Height:	49.8 in/1263.7 mm
Weight:	127 lbs/57.7 kg

A

POWER REQUIREMENTS:

Voltage:	90 to 132 Vac or 180 to 264 Vac
Frequency:	47 to 63 Hz
Current:	0.75 to 1.0 amp (90 to 132 Vac) 0.40 to 0.6 amp (180 to 264 Vac)
Peak Watts:	150
Avg. Watts:	100
BTU/hr.	341

ENVIRONMENT:

Noise:	69 dBa (operating) 55 dBa (power-on idle)		
Temperature			
Storage:	-29°C to 70°C (20°F to 158°F)		
Operating	<table><tr><td>Cut Sheet: 15°C to 32°C (59°F to 90°F)</td><td>Roll: 20°C to 26°C (68°F to 78°F)</td></tr></table>	Cut Sheet: 15°C to 32°C (59°F to 90°F)	Roll: 20°C to 26°C (68°F to 78°F)
Cut Sheet: 15°C to 32°C (59°F to 90°F)	Roll: 20°C to 26°C (68°F to 78°F)		
Humidity:*	<table><tr><td>Cut Sheet: 20 to 60% relative, noncondensing</td><td>Roll: 40 to 60% relative, noncondensing</td></tr></table>	Cut Sheet: 20 to 60% relative, noncondensing	Roll: 40 to 60% relative, noncondensing
Cut Sheet: 20 to 60% relative, noncondensing	Roll: 40 to 60% relative, noncondensing		
Altitude:	0 to 8,000 feet		
EDS Immunity:	25 kV (no component damage)		

*Practical limits are dependent upon media used.

SPECIFICATIONS

1026 STANDARD EQUIPMENT:

- One Plotter
- One User's Guide
- One Quick Reference Guide
- One RS-232C interface
- One package of two WLB liquid ball pens
- One package of two WL liquid ink pens
- One power cord (8 ft./2.4 m)
- One package of six cut-sheet 23.4 by 33.1 inches A1-600, 22-pound bond paper
- One roll of 22-pound bond paper
- One 8-pen turret
- One take-up spool paper core

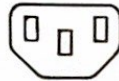
OPTIONAL ACCESSORIES:

- HCBS software
- Reticle
- Additional pen turret
- Premium pen kit (includes reticle)
- RS-232C cable (10 or 25 feet)
- Memory expansion cartridge and ADI driver

INTERNATIONAL POWER CORD CONFIGURATIONS

The international power configuration has a detachable power cord. If the supplied power cord is not compatible with your power outlet, read the following:

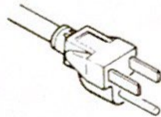
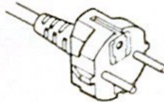
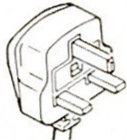
- The power cord must have a CEE-22 female connector.



- Power cords used in Europe must be harmonized and designed with an HAR marking on the outside of the cord jacket. This is necessary to comply with the CENELEC Harmonized Document HD-21.
- U.S. power cords must be UL recognized or listed, type SJT, 16/3 AWG (stamped on cord jacket) and CSA certified (labeled on cord jacket).
- Any power cord must also conform to local safety standards.
- See Table A-1 for examples of international power cords.

SPECIFICATIONS

TABLE A-1. INTERNATIONAL POWER CORDS

CORD TYPE	AC VOLTAGE	CONNECTOR	CALCOMP PART NUMBER
U.S./Canada/Japan NEMA5-15P Male Connector Type SJT, 16/3 AWG UL Recognized or Listed CSA Certified	100 or 120 Vac 50 or 60 Hz Single -Phase		607070-0
Continental European CEE7-7 (Schuko) Male Connector Harmonized Cord, 10A	220 or 230 Vac 50 Hz Single-Phase		682180-5
Great Britain BS 1363 Male Connector w/Fuse Harmonized Cord, 10A	240 Vac 50 Hz Single-Phase		14779-0018
Australia AS 3112-1981 Male Connector, 10A	240 Vac 50 Hz Single-Phase		14778-0019

A

APPENDIX B

CPGL INFORMATION

This appendix is a summary of the CalComp Plotter Graphics Language (CPGL) and Hewlett-Packard Graphics Language (HPGL) commands recognized by the Artisan Plus plotter.

CALCOMP PLOTTER GRAPHICS LANGUAGE

CalComp designed the CalComp Plotter Graphics Language (CPGL) to allow users to connect their plotters to most Hewlett-Packard Graphics Language (HPGL) RS-232C data or Centronics (parallel) sources (software programs). The CPGL and HPGL graphics languages share many commands in common. However, some HPGL commands are not supported by CPGL. These are listed in Tables B-1 (unsupported A features) and B-2 (unsupported B features). The CPGL command set is listed in Table B-3. Table B-3 also includes the command symbol, the command operation, and its compatibility to HPGL.

Your CAD programs should communicate with the plotter using the appropriate graphics language without your intervention. Very few graphics packages allow you to embed your own commands. Therefore, under most circumstances, you never need to use these graphic commands. The three tables that follow are shown for reference only.

UNSUPPORTED HPGL A FEATURES

Table B-1 lists all HPGL A features not supported by CPGL.

TABLE B-1. UNSUPPORTED HPGL A FEATURES

Digitize Commands	
DC	Digitize Clear
DP	Digitize Point
OD	Output Digitized Point and Pen Status
User-Defined Character Command	
UC	User-Defined Character
Return Character Size and Shape Commands	
IC	Input Character for Sizing
OB	Output Box dimensions of character previously input via IC

UNSUPPORTED HPGL B FEATURES

Table B-2 lists all HPGL B features not supported by CPGL.

TABLE B-2. UNSUPPORTED HPGL B FEATURES

Characters	
DL	Down-Loadable Character
CM	Character Selection Mode
DS	Designate Character Set Into Slot
IV	Invoke Character Slot
Plotting with Roll Media	
EC	Enable Cut Line
AF/PG	Advance Full Page
AH	Advance Half Page
FR	Advance Frame
RS232-C Device Control	
ESC.P	Set Handshake
ESC.Q	Set Monitor Mode
ESC.R	Reset
ESC.S	Output Memory Size
ESC.T	Configure Memory

If you have any other questions about unsupported HPGL features, contact a CalComp Sales and Support Office listed in Appendix D.

A

Differences Between CPGL and HPGL Command Sets

Some HPGL A features are not emulated exactly by CPGL. These differences are:

- The INPUT MASK (IM) command does not affect the error LED since there is none on the plotter.
- Proportional spacing of text is not supported by CPGL. Character sets have similar but not identical shapes. Italic angles cannot exceed 45 degrees.
- The CPGL coordinate system is oriented with +X going from center to bottom and +Y going from left to right. Some of Hewlett-Packard plotter coordinates are oriented in the same manner. However, other Hewlett-Packard plotter coordinates are rotated 180 degrees.
- Line types are drawn in the same way as HPGL except line type 0.
- The number of segments in the adaptive dash line may differ by one in some cases.
- There may be differences related to speed, number of pens, and other physical plotter differences.
- After receiving an effective window command, the pen is moved to the MIN position. The pen then moves to the MAX position and returns to the previous position instead of no action of HPGL.

CPGL Command Set

Table B-3 lists the command set for CPGL. This table provides information on the operation feature, its command symbol, the type of operation it performs, and its compatibility to HPGL. Responses to compatibility are as follows:

Compatibility	=	The CPGL operation is compatible with HPGL.
Different	=	The CPGL operation is similar to HPGL; for differences, refer to the prior section, Differences Between CPGL and HPGL Command Sets.
No-op	=	This operation is not supported.
No-op & flag	=	This operation is not supported, but a syntax error is reported in the flag status.
N/A	=	This operation is not available and the "Invalid Command Received" message is displayed.

TABLE B-3. CPGL COMMAND SET

Symbol	Operation	Operation Type	Compatibility
AA	Arc Absolute	Circles, Arc, Polygons	Compatible
AF	Advance Full Page	Plotting w/Roll Media	Compatible
AH	Advance Half Page	Plotting w/Roll Media	Compatible
AP	Auto Pen Pickup	Pen Control & Plotting	No-op & flag
AR	Arc Relative	Circles, Arc, Polygons	Compatible
AS	Acceleration Select	Pen Control and Plotting	No-op
BL	Buffered Label String	Characters	Compatible
CA	Alternate Character Set	Characters	Different
CC	Character Chord	Characters	Different
CI	Circle	Circles, Arc, Polygons	Compatible
CM	Character Select Mode	Other Character Mode Select	N/A
CP	Character Plot	Characters	Compatible
CS	Standard Character Set	Characters	Different
CT	Chord Tolerance	Circles, Arc, Polygons	Compatible
CV	Curved Line Generator	Pen Control	N/A
DC	Digitize Clear	Digitizing	N/A
DF	Default	Device Control	Different
DI	Absolute Distance	Characters	Compatible
DL	Down-Loadable Character	Characters	N/A
DP	Digitize Point	Digitizing	N/A
DR	Relative Direction	Characters	Compatible
DS	Character Set in Slot	Other Character Mode Select	N/A
DT	Define Label Terminator	Characters	Compatible
DV	Direction Vertical	Characters	N/A
EA	Edge Rectangle	Circles, Arc, Polygons	Compatible
EC	Enable Cut Line	Plotting w/Roll Media	Compatible
EP	Edge Polygon	Circles, Arc, Polygons	Compatible
ER	Edge Rectangle	Circles, Arc, Polygons	Compatible
ES	Extra Space	Characters	Compatible
ESC.(	Plotter On	RS-232C Device Control	Compatible

TABLE B-3. CPGL COMMAND SET - Continued

Symbol	Operation	Operation Type	Compatibility
ESC.)	Plotter Off	RS-232C Device Control	Compatible
ESC.@	Set Plotter Configuration	RS-232C Device Control	Compatible
ESC.A	Output Identification	RS-232C Device Control	Compatible
ESC.B	Output Buffer Space	RS-232C Device Control	Compatible
ESC.E	Output Extended Error	RS-232C Device Control	Compatible
ESC.H	Set Handshake Mode 1	RS-232C Device Control	Compatible
ESC.I	Set Handshake Mode 2	RS-232C Device Control	Compatible
ESC.J	Abort Device Control	RS-232C Device Control	Compatible
ESC.K	Abort Graphics	RS-232C Device Control	Compatible
ESC.L	Output Buffer Size	RS-232C Device Control	Compatible
ESC.M	Set Output Mode	RS-232C Device Control	Compatible
ESC.N	Set Extended Output Handshake	RS-232C Device Control	Compatible
ESC.O	Output Extended Status	RS-232C Device Control	Compatible
ESC.P	Set Handshake Protocol	RS-232C Device Control	N/A
ESC.Q	Set Monitor Mode	RS-232C Device Control	N/A
ESC.R	Reset	RS-232C Device Control	N/A
ESC.S	Output Memory Size	RS-232C Device Control	N/A
ESC.T	Configure Memory	RS-232C Device Control	N/A
ESC.U	End Flush Mode	RS-232C Device Control	N/A
ESC.Y	Plotter On	RS-232C Device Control	Compatible
ESC.Z	Plotter Off	RS-232C Device Control	Compatible
EW	Edge Wedge	Circles, Arc, Polygons	Compatible
FP	Fill Polygon	Circles, Arc, Polygons	Compatible
FR	Advance Frame	Plotting w/Roll Media	Compatible
FS	Force Select	Pen Control and Plotting	No-op
FT	Fill Type	Circles, Arc, Polygons	Compatible
GC	Group Count	Plotter Information	N/A
GM	Graphic Memory	Circles, Arc, Polygon	N/A
GP	Group Pen	Pen Control and Plotting	Compatible

TABLE B-3. CPGL COMMAND SET - Continued

Symbol	Operation	Operation Type	Compatibility
IM	Input Mask	Program Instructions	Different
IN	Initialize	Device Control	Different
IP	Input P1/P2	Scale/Window/Rotate	Compatible
IV	Invoke Character Set	Other Character Mode Select	N/A
IW	Input Window	Scale/Window/Rotate	Different
KY	Define Key	Front Panel Function	N/A
LB	Label	Characters	Different
LO	Label Origin	Characters	Compatible
LT	Line Type	Plot Enhancement	Different
NR	Not Ready	Device Control	Compatible
OA	Output Actual Position/Pen	Plotter Information	Different
OC	Output Commanded Position/Pen	Plotter Information	Different
OD	Digitized Point/Pen	Plotter Information	N/A
OE	Output Error	Plotter Information	Compatible
OF	Output Factors	Plotter Information	Compatible
OG	Output Group Count	Plotter Information	N/A
OH	Output Hard Clip Limits	Plotter Information	Compatible
OI	Output Identification	Plotter Information	Compatible
OK	Output Key	Plotter Information	N/A
OL	Output Label Length	Plotter Information	Different
OO	Output Options	Plotter Information	Compatible
OP	Output P1/P2	Plotter Information	Compatible
OS	Output Status	Plotter Information	Compatible
OT	Output Turret Type	Plotter Information	Different
OW	Output Windowing	Plotter Information	Compatible
PA	Plot Absolute	Plotting with Variables	Compatible
PB	Print Buffered Label	Characters	Compatible
PD	Pen Down	Plotting with Variables	Compatible
PG	Advance Full Page	Plotting w/Roll Media	Compatible

TABLE B-3. CPGL COMMAND SET - Continued

Symbol	Operation	Operation Type	Compatibility
PM	Polygon Mode	Circles, Arc, Polygons	Compatible
PR	Plot Relative	Plotting with Variables	Compatible
PS	Page Size	Plotting with Roll Media	Compatible
PT	Pen Thickness	Circles, Arc, Polygons	Compatible
PU	Pen Up	Plotting with Variables	Compatible
RA/RR	Fill Rectangle	Circles, Arc, Polygons	Compatible
RO	Rotate Coordinates	Scale/Window/Rotate	Compatible
SA	Select Alternate Set	Characters	Compatible
SC	Scale	Scale/Window/Rotate	Compatible
SG	Select Pen Group	Pen Control and Plotting	Compatible
SI	Absolute Character Size	Characters	Compatible
SL	Character Slant	Characters	Different
SM	Symbol Mode	Plot Enhancement	Different
SP	Pen Select	Plotting with Variables	Compatible
SR	Relative Character Size	Characters	Compatible
SS	Select Standard Set	Characters	Compatible
TL	Tick Length	Plot Enhancement	Compatible
UC	User-Defined Characters	Characters	N/A
UF	User-Defined Fill Type	Circles, Arc, Polygons	Compatible
VS	Velocity Select	Pen Control and Plotting	No-op
WD	Write to Display	Plotting with Roll Media	N/A
WG	Fill Wedge	Circles, Arc, Polygons	Compatible
XT	Tick X-Axis	Plot Enhancement	Compatible
YT	Tick Y-Axis	Plot Enhancement	Compatible

A

APPENDIX C

USER PARAMETER CHARTS

On the following pages you will find several charts which have been created for you to record parameters for the four user numbers. The chart on page D-2 contains communications and set-up parameters, page D-3 contains pen parameters, and page D-4 has been left blank to record any miscellaneous information. These charts serve as a quick reference to your setups and should always be updated whenever information is changed.

USER PARAMETER CHARTS

USER PARAMETER CHART

	USER NUMBER			
	1	2	3	4
APPLICATION				
Format				
Baud				
Byte				
Stop Bits				
Parity				
Handshake				
Sync Char				
End Message Char				
Checksum				
Plotter Type				
SET UP				
Scale				
Rotate				
Plot Manager				
Language				
Units				
* Plot Mode				
* Cut Line				
* Stab Time				
* EOF Clock				
* Pen Grouping				

* 1026 only

A

PEN PARAMETERS

		USER NUMBER			
		1	2	3	4
	Type				
PEN 1	Speed				
	Force				
	Type				
PEN 2	Speed				
	Force				
	Type				
PEN 3	Speed				
	Force				
	Type				
PEN 4	Speed				
	Force				
	Type				
PEN 5	Speed				
	Force				
	Type				
PEN 6	Speed				
	Force				
	Type				
PEN 7	Speed				
	Force				
	Type				
PEN 8	Speed				
	Force				

A

APPENDIX D

OBTAINING SUPPLIES/SERVICE

SUPPLIES

If you are within the continental United States, call *1-800-CALCOMP*. If you are outside of the continental United States, refer to the listing contained in this appendix, and contact the office in your area.

SERVICE

If you are within the continental United States, contact the dealer from whom the plotter was purchased. If additional assistance is required, call *1-800-CALCOMP*. If outside the continental United States, refer to the listing contained in this appendix and contact the office in your area.

When requesting service from a CalComp office, please have the following information available:

- Customer number
- Plotter model number
- Plotter serial number
- Host computer/modem type attached to plotter
- Application software being used
- Media being used
- Dealer from whom the plotter was purchased
- If the warranty has expired, the date the plotter was purchased

GLOSSARY

Acceleration - The rate at which the pen moves to maximum plot speed relative to the media.

Accuracy - The difference between the commanded end point and the actual end point.

Ack/Nak - A coded response from the plotter to the host sent via the RS-232C data line to control data flow. Ack = Data received from the host is ok. Nak = Data received from the host has an error, please send data again.

Batch Plot - Multiple plots, each one up to 48 inches long on roll media. Between Batch plots the media is advanced and stabilized. Finished plots are automatically rolled onto the front take-up assembly.

Batch/Long Plot - A combined Batch plot and Long plot capability of the 1026 Artisan Plus when the optional memory expansion module is installed. This allows unattended plotting of multiple plots longer than 48 inches.

Baud Rate - The data transmission rate over an RS-232C communications path, usually expressed in bits per second (bps).

Buffer Usage Test - (% Buf) - Displays percentage of memory being used to plot data.

GLOSSARY

Checksum - A method of checking the integrity a block of data by applying an algorithm to each byte in the block of data. The resulting checksum character is appended as the last byte in the block. When data is sent from the host, the checksum character sent from the host is compared with a checksum character generated by the plotter. If the checksum characters match, it is assumed that the transmitted data is the same as the received data. If the characters don't match, it is assumed the data is bad.

CLCMP - A set-up option when using CPGL mode. CLCMP = CalComp as the plotter type.

CPGL - A protocol that emulates the Hewlett-Packard Graphics Language (HPGL) and allows CalComp plotters to operate with software that uses HPGL. CPGL = CalComp Plotter Graphics Language.

Cutline - A feature of the Artisan Plus 1026 that automatically draws a pair of lines, 1/4 inch apart, to aid the user in cutting the completed plot off the roll media.

Data Byte Format - Used in PCI and CPGL formats to set stop bits and parity.

DCE - (Data Communications Equipment) - An RS-232C configuration where data is transmitted on pin 3 and received on pin 2.

Direct Control - An RS-232C protocol that uses a positive or a negative voltage applied to a hardware line (usually CTS) to start or stop data flow. There is no error recovery with this protocol.

DTE - (Data Terminal Equipment) - An RS-232C configuration where data is transmitted on pin 2 and received on pin 3.

End-of-Message Character - A character transmitted after each record is sent to indicate the end of a data block.

EOF Time Out - The End Of File (EOF) time-out feature causes the plotter to check for this time out when the input buffer is empty. That is, when the plotter has plotted all the data in the input buffer and the time-out time, in seconds, has elapsed after the last data from the host has been received, the plotter considers the plot to be complete.

Forms Alignment - An option used with gridded media and preprinted forms to align the media to the plotter's X and Y axes.

Frame - A 48-inch section of a Long plot. It is recommended that plots generated on the Artisan Plus 1026 be no longer than five frames (240 inches) for best results.

Frame Registration Marks - Frame to frame alignment marks that are automatically drawn by the 1026 Artisan outside of the normal plot area. These marks are sensed and their location used for frame to frame alignment and compensation (only in Long or Batch/Long plot modes for plots longer than 48 inches).

Handshake - Any RS-232C communication protocol used to control data flow between a host and the plotter based on the availability of I/O buffer space.

HPGL - (Hewlett-Packard Graphics Language) - The graphics instruction set used for communication with Hewlett-Packard plotters.

IMD - (Input Monitor Dump) - A test used to indicate what plot data has been sent from the host computer.

ISO - International Standards Organization for Engineering drawings.

Limit - Defines an image area for the plot to be drawn. The image outside of the limits is excluded from the plot.

Long Plot - A roll media plot consisting of two or more frames that, when plotted, are contiguous. Each frame is aligned to the frame or frames on either side of it via frame registration marks. It is recommended that a long plot be limited to no more than five 48-inch frames. (The last frame of a long plot can be up to 48 inches long. Plots requiring shorter last frames are automatically terminated at the appropriate size.)

Origin - The point the plotter enters Online mode.

Origin Return - An option that allows the plotter to return to the origin point.

P1 - A scaling point that generally specifies the location of a plot's lower left corner when using CPGL format.

P2 - A scaling point that generally specifies the location of a plot's upper right corner when using CPGL format.

Page - A section of media intended for a complete plot.

Parity - An error checking scheme that may be used when transferring binary data. Parity may be even or odd, or none. With odd parity, the parity bit for each character is set to a "ZERO" or a "ONE" to ensure there is an odd number of "ONE" bits in each character. With even parity, the parity bit for each character is set to a "ZERO" or a "ONE" to ensure there is an "EVEN" number of "ONE" bits in each character.

PCI Mode - Plotter Communication Interface (an extended version of 907 formatted data).

Pen Force - The magnitude of the force required to hold the pen on the media (the larger the number the greater the magnitude).

Pen Grouping - A feature that allows the plotter to treat a group of pens as one pen number. This feature uses each pen to draw for 100 meters before the active pen is automatically exchanged for the next pen in the same group.

Plot Manager - A CalComp proprietary algorithm that minimizes pen changes and movement, thus enhancing throughput.

Plot Speed - Plot speed is expressed as Axial or Diagonal. Axial plot speed is the speed at which a plotter can draw a straight line on the X or Y axis. Diagonal plot speed is the speed at which the plotter can draw a line at 45 degrees.

Quiet Mode - A condition of the Artisan Plus plotter where the fan motor and servo-drive electronics are turned off. Done during waiting times and unloaded states to reduce noise and power consumption.

Repeatability - A measure of how closely a device can return a pen to a previously plotted point.

Resolution, Addressable - The smallest move that the user can specify programmatically.

Resolution, Mechanical - The smallest move the plotter can make in any direction.

Reticle - An optical device used to help position media accurately.

GLOSSARY

Single Plot - Cut sheet plots from roll media. Each plot must be cut off before the start of the next plot. The finished single plot is positioned such that the space between plots is centered over the cutter track.

Stabilization Time - Roll media stabilization time during which the media is allowed to acclimate to the plotter environment. During media stabilization time the plotter is switched to the quiet mode: fans and servo-drive electronics off.

Stop Bit - In asynchronous transmission mode, a bit that indicates the end of the data byte being transmitted.

Sync Character - A character placed at the beginning of a PCI block (or record) to notify the plotter that the following data is plot data.

Sync Character Value - The numeric value of the sync character.

Xon/Xoff - A coded response from the plotter to the host sent via the RS-232C data line used to control data flow. Xon = Send more data. Xoff = Data buffer full, do not send more data. There is no error recovery capability as in Ack/Nak protocol.

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